

# AMERICAN FORESTS



JULY 1940

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## AMERICAN FORESTS

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Published monthly by

### THE AMERICAN FORESTRY ASSOCIATION

919 Seventeenth Street  
Washington, D. C.

The American Forestry Association is a citizens' organization for the advancement of intelligent management and use of the country's forests and related resources of soil, water, wildlife and outdoor recreation.

Its educational activities seek to bring about a better appreciation and handling of these resources, whether publicly or privately owned, that they may contribute in the highest degree to the welfare of the nation and its people.

In addition to publication of two magazines—AMERICAN FORESTS and CONSERVATION, both designed to keep before the people of the country important conservation questions and issues, the Association carries on educational projects in various fields including forest fire prevention, reforestation, protection of fish and wildlife, upstream flood control, prevention of soil erosion, preservation of wilderness areas, establishment of national forests and parks, development of forestry by private endeavor, the teaching of conservation in the schools of the country, promotion of research in timber growing and use and expansion of markets for forest products.

The Association is independent. It has no connection with any federal or state governments. It is non-political and non-commercial. All its resources and income are devoted to the advancement of conservation. It has been so operated since its founding in 1875. All citizens interested in forestry and conservation are eligible for membership.

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Member A. B. C.

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- Adequate Forest Fire Protection by federal, state and other agencies.
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- Protection of Fish and Game and other wildlife under sound game laws.
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# READERS' FORUM

## TREES AND YOUTH

SIR: I was very much impressed with the article "Holland's School Forest," by Shirley W. Allen, which appeared in the May issue of *AMERICAN FORESTS*. Certainly here is something every educator as well as every parent should read and consider. More than that, here is something every community, every civic organization, every public spirited individual should give serious thought to. The school, like the church, has great influence in every American community, be it large or small, and the development of school forests along the lines of cooperative effort such as has been done in this Michigan town seems to me the best kind of insurance for future natural as well as human resources. I would be interested to know just how many school forests there are in America—and also what can be done to encourage such projects. Furthermore, it seems to me that tree planting is something the community church may well consider. With both the church and school actively interested in conservation there should be little concern as to the future of conservation—*Mrs. Jay Moore, Richmond, Virginia.*

## RESPONSIBILITY FOR FIRE PROTECTION

SIR: Reference is made to the April number of *AMERICAN FORESTS* and the stress it lays upon forest protection.

After sixteen months' personal dedication to the civilian responsibility of insuring funds for the protection agencies, I believe:

That individual congressmen and senators do not understand the menace to their own localities, nor does the general public. That Congress votes by volume of mail. That conservation groups either have selfish, retarding purposes, or else take pardonable pride in much reading on technical subjects—or else much chatter with each other—but that only in rare instances do they understand and shoulder the civilian responsibility of insuring money for personnel, equipment and construction needs.

I believe that some very concise, comprehensive, colorful and patriotic material should be sent to all the country's big organizations, both men and women.

My own health and financial resources

are exhausted. Public apathy and political antagonism, for over a year, find me a useless conservationist.

I do commend to you the further carrying on of the great work you are doing.  
—*Miss Jessie E. Dunning, Sierra Madre, California.*

## TREE CELEBRATION

SIR: Eleven million trees have been planted in a region in central Nebraska which was very hard hit by the drought and the dust storms. Mile after mile of spruce, birch, elm, cottonwood and other types of trees have been set out and some of these have attained a height of from twenty-five to thirty feet.

On June 16, twenty-one communities in central Nebraska which have been most affected by this tree planting program, held a celebration which thousands of people attended. Special trains were run from points as far away as Omaha, Lincoln and Sioux City.

I don't know of anything that more vividly illustrates the importance of trees in our national life than this section of a drought stricken state which is definitely on the comeback because of the trees.—*Charles R. Smith, Norfolk, Nebraska.*

## LARGE FLORIDA CYPRESS

SIR: I would like to call your attention to a big cypress tree near Longwood, Florida, to which I have guided quite a number of native Floridians.

When W. R. Mattoon of the Forest Service was in my office several years ago I mentioned this tree and he had not heard of it. I then loaned him a photographic negative from which he made some prints, including a fine enlargement which he presented to me.

As stated, this tree stands near Longwood, Florida, in Seminole County, I believe, and is certainly worth seeing. It is seventeen feet in diameter, 127 feet high, and its age has been estimated at 3,500 years. I am sure of the dimensions although I doubt the estimated age, but it certainly could be proved to be more than 2,500 years old.—*Dr. John F. Cunningham, Dean, College of Agriculture, Ohio State University, Columbus, Ohio.*



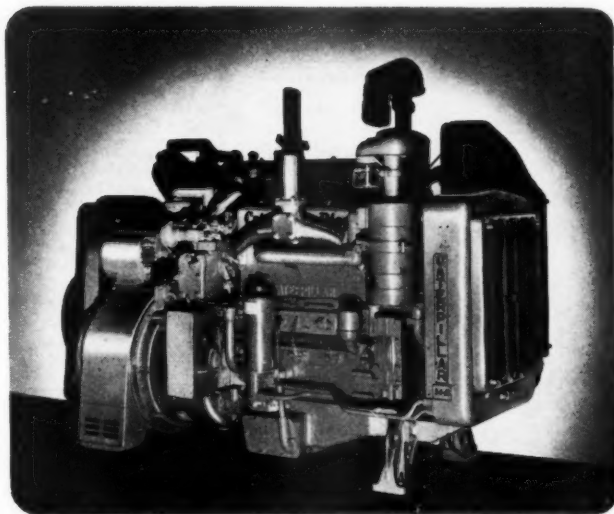


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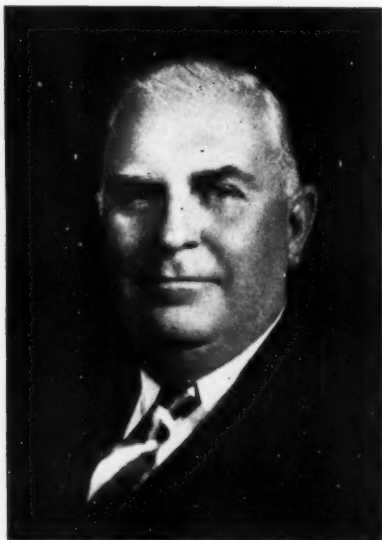
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P. R. CAMP

THOUGH serving his first term as a director—having been elected in 1936, Mr. Camp is one of the most active members of the Board. His deep interest in the work of the Association undoubtedly stems from a life-long love for and contact with the forests and outdoors. Son of a lumberman-manufacturer, he was born in North Carolina in 1883, but is really a Virginian, for when he was a small boy the family moved to Franklin, Virginia. There, in 1887, his father founded the Camp Manufacturing Company, the logging operations of which extend through Virginia, North and South Carolina and the phosphate country of Florida.

On graduating as an electrical engineer from Virginia Military Institute in 1904, Mr. Camp entered the University of Virginia and took his M.A. degree in 1907.

## OUR DIRECTORS

On leaving college he went to Florida as general superintendent of the phosphate mines of the Albion Mining and Manufacturing Company at Newberry, returning to Franklin in 1908 to enter the employ of his father's company. Working up from the ranks, he became vice-president of the company in 1912 and has since devoted his life to advancing its interests, both in lumber manufacturing and the transportation industries involved in its operations. It is interesting to know, too, that the Chesapeake-Camp Corporation, chartered in 1936 and dedicated to building and operating a four-million dollar enterprise in the manufacture, production and handling of kraft paper and other forest products, is an outgrowth of the mother logging company founded by Mr. Camp's father when he was a boy of four. The new company, organized and staffed along the most modern lines to make paper out of wood and help fill with her new "green gold" the coffers of the South, has enlarged and assured the industrial future of Franklin, provided steady employment for hundreds of workers and given nearby farmers and owners of forest land a continuing and permanent cash crop.

During the World War, Mr. Camp saw service with the Forest Engineers, was commissioned a captain and later a major in the Reserve Corps. Deeply interested in forestry and conservation, Mr. Camp has been a member of our Association since 1916, an executive and past president of the North Carolina Forestry Association and a member of that organization since its beginnings thirty years ago, and a past president of the Santee Timber Corporation and director of the Old Bay Line. His genial personality and enthusiasm are characteristic and account for his myriad friends and associates in fraternal, banking and church activities.

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Washington reverberates these days with the din of rearmament. It reverberates a nation that is alarmed—and not without good reason. People are asking to be taxed. That means fright—an awareness of the reality of danger.

It means also that the days of federal spending on the frills and mill-ends of an abundant life are numbered. When a people voluntarily ask to take on added tax burdens, it is inevitable that they will demand economy in all things except those for which they ask to be taxed.

But among the myriad of federal activities today, who is to appraise and select the essential ones from a defense standpoint? That is the vital question of the moment. Take the single field of forest conservation, for example. Forests are one of our greatest sources of raw material for the fabrication of war material. If there is doubt on this score let the reader turn back to the January issue of this magazine and read the article "Wood in Modern Warfare."

There is a German saying of recent date "To be without wood in time of war is almost as bad as being without bread." We learned this in the World War. We sent troops abroad to help supply the Allies with wood. We speeded up forest research at the government's Forest Products Laboratory at Madison, Wisconsin. We put spruce divisions in the northwest to turn out airplane stock. In short we scouted for special woods in every nook and corner of the country to meet the thousand and one demands of armies in the field.

We must not forget this or permit ourselves to be lulled by the belief that wood is out of date in modern warfare. It is more vitally in date than at any time in the world's history. In this as in other fields of government spending there are essential and non-essential activities from a national defense standpoint. What intelligent economy calls for first is a critical appraisal of Uncle Sam's work sheets by politically impartial experts as the basis for putting tax dollars on the vital spots of an organized preparedness program.

\* \* \* \* \*

And speaking of economy, there is another type which the times call for desperately—economy of individual nerves. As the din of war and rearmament grows louder, more confused and more gripping, the tenseness of living calls louder for fitness of mind and body. There is need as never before to arm ourselves against the thrust of modern conquerors but also there is need to arm against the weakening of the fibres that knit us into a great democratic people. As individuals we must arm against the exhaustion of our energies, against the dissipation of our spiritual calm, against the shattering of our emotional stability.

Fortunately we still have the way—free woods. Throughout our country are national, state and private forests and parks. To every grove, every mountain, every quiet lake within them, there is a road or trail. Here in the spiritual and restful qualities of green landscapes, is to be found relaxation for taut nerves and tired minds. Here one may calm his heart while driving or hiking along green trails or camping where trees, wildlife and clear, swift-running streams are companions.

So for a few days or a few weeks—according to individual needs: "Climb the mountains and get their good tidings. Nature's peace will flow into you as sunshine flows into trees. The winds will blow their freshness into you and the storms their energy, while cares will drop off like leaves."

John Muir might have added: "And you will see clearer, think straighter and walk more confidently."

*Orin Rusten*

Editor.



I. D. Lindsey

"CONSERVATION IS A DOUBLE LANE HIGHWAY TO THE FAR  
END OF NATIONAL PREPAREDNESS." (See Editorial Opposite)



# EDITORIAL



## THE NEW FRONTIER

AMERICAN frontiers have not vanished. Events in Europe during May dispelled that economic doctrine with an impact that shook the whole nation and brought into close perspective the outlines of a new and formidable frontier. It is, of course, the frontier of national defense with its impelling challenge to conquer American unpreparedness in mind, spirit and resources with preparedness in all ways and all things that the freedom of American life may be safeguarded and preserved. And on this front, conservation has a role to play.

We are accustomed to thinking of frontiers in terms of land where the sky touches unknown and unsettled prairies, mountains or wilderness, infested with savages, wild beasts and conditions of hardship but inviting nevertheless adventure, freedom, the building of new homes and towns, the finding of untouched wealth in and on hitherto untrod earth.

The new frontier is a deadly reverse. Instead of prairies or mountains beckoning in God's clean sunlight, it is a dark morass of moving images that come closer and closer, shrouded in eventualities that threaten all that we are and all that we have in the way of spiritual, political and material possessions. Where or when, if or how, it will strike — whether quickly or with treacherous leisure — no one can say. If ever there was a frontier to inspire and engage the men and women, and especially the youth of America, it is this new frontier.

Conquer it we must and will. But let us not delude ourselves into thinking it is a frontier of volunteer adventure. It is an undertaking that calls into immediate service the best measure of courage, sacrifice and objective thinking every one can give — an undertaking that calls for national unity in planning and carrying preparedness *all the way through*.

As an immediate first step, the obvious need of providing means to defend our nation against physical attack from without has promptly and rightly received the overwhelming support of the American people. Fear of imminent attack by Hitler's war machine however has — not without hysteria — centered the public mind upon national preparedness as a problem of defense in terms of soldiers, machines, guns, war supplies, production factories. It is very much more than that and must be so recognized.

We are dealing with a frontier different from any that has ever faced us and a time in the world's history that may be called the dog days of the human mind. A hydrophobia of ideologies destructive of our way of life and breeding on propaganda of falsehood, hatred, treachery and force is epidemic throughout the world. National preparedness must meet the disease no less

than its festered might or preparedness will prove fatally halfway.

But what, it may be asked, has all this to do with conservation? The answer is that the taking of this new frontier is, in both form and substance, an undertaking in conservation — the greatest of all time. It is conservation in its broadest sense. It is America's saga to conserve freedom of thought, speech, worship, work, play, life itself; to conserve free homes and institutions; to conserve self-rule, truth and justice and finally to conserve the soil from which we get the substance to sustain ourselves and our freedom of thought and action.

Preparedness begins with conservation of faith in these tenets of freedom. To rearm is largely a matter of money and organization that can be rapidly accomplished but that will not long assure preservation of our defensive power unless back of it are always natural resources to sustain it and always soldiers and citizens whose faith in democracy is so deeply rooted that they leap to arms in mind, body and soul as quickly against fifth column infiltration as against open armed invasion.

Conservation is a double lane highway to the far end of preparedness. One lane supports the military organization by maintaining supplies of natural resources — food, fibre, lumber, minerals; the other supports the faith and confidence of the people in democracy by making the land a more fruitful and precious place to live. As conservation, for example, redeems fire-burned or eroded soils for forests, food crops, industries, employment, homes, recreation, beauty, to that extent it makes American life more precious and democracy more worth fighting for. And to that extent it blacks out ground for seeds of sedition.

Nor should it be overlooked that conservation of land resources takes men and women out of doors, teaches them the value of work, toughens their muscles and clears their minds. People who are fed at relief stations at government expense have nothing much to fight for except a new order but people who rebuild forests, crumbling watersheds or eroded valleys for the making of new homes are not only ready but physically fit to fight any and all violators of their freedom to contribute to human welfare in their own ways.

This then is the new frontier. It is a challenge to America to prepare *all the way through*. There is now grave danger that the emphasis upon armament will leave other needed things unconsidered, unplanned, undone. Nothing short of a long-range program with all parts geared like the parts of an automobile, will carry us across this new frontier — and that is what the American people must insist upon.



# CORONADO'S JOURNEY

## AND THE FORESTS AND WILDLIFE OF 1540

By  
FRED WINN



Coronado and his entourage on the trail, in search of the fabled Seven Cities of Cibola—supposedly paved in gold and rich in precious gems—as pictured in "The Explorers"—drawn by Frederick Remington



Santa Fe Railway

The Grand Canyon—mecca of tourists today—was first made known to the world by Cardenas, a lieutenant of Coronado's. This natural marvel lay within the area described by Castaneda, historian of the expedition, as "all the rest of the country is all wilderness covered by pine forests"

IN MEXICO, 400 years ago, was enacted a drama not only epic in itself but one which did much in determining the march of empire in North America. Cabeza de Vaca appeared in Mexico City shortly after the conquest of that country with astounding tales of vast areas in the north which contained cities of stone with streets paved with gold, and inhabited by a race of men as far advanced in the arts and crafts as the Spaniards themselves.

This tale caused wide excitement and Antonio de Mendoza, who had been sent as viceroy to this New Spain, decided forthwith to explore the fabulous northern region which, centuries later, was to become a part of the United States. As an advance guard he sent Fra Marcos de Niza and Estavan, a negro or Moorish slave, who had been Vaca's companion on his unbelievable journey from Florida.

It is recorded that the wily Estavan induced the good Father to permit him to go in advance with one of two Indian guides; that upon reaching the Zuni Indian village of Hawikuh he was accepted by the natives as a sort of ebony god and became lord of all he surveyed. But not for long. For some reason the natives turned against him and he was put to death. Hearing of this, Fra Marcos decided it unwise to proceed. After viewing the mud huts of Hawikuh from a mesa top, he returned to Mexico City with the report that "As far as I can tell it (Hawikuh) is bigger than the City of Mexico."

This resulted in the immediate organization of an ex-

pedition for conquest and discovery. Francisco Vasquez de Coronado, thirty years old, whom Mendoza had installed as governor of the province of Nueva Galicia in western Mexico, was placed in command. To his standard flocked the blue-bloods, the adventurous young *caballeros* of Old Spain. Here were new lands and new wealth to be secured! Here was adventure, the very spice of life to these young scions of a mighty empire.

So, on February 23, 1540, Coronado set out from Compostela, an advance post near the west coast of Mexico, on a journey that was to end two years later. His army of exploration and conquest included some 250 cavaliers, seventy foot soldiers armed with crossbows and harquebuses, 300 native Mexicans, and 1,000 Indian and negro slaves. With them rode gray-robed Franciscan friars, and trailing the colorful procession were pack trains and herds of swine, sheep and cattle to feed the army and to stock the newly conquered lands.

At Coronado's side rode Fra Marcos de Niza, going both to save souls and as a guide over the trail he had traveled the previous year. Near him, too, rode Castaneda, the historian of the expedition, whose narrative has been closely studied ever since.

On a May day, three months after the departure from Compostela, Coronado led his *entrada* into what 300 years later became, by another conquest, a part of the great republic. This was forty-five years before Croatan, the first English colony in America, sixty-seven years before Jamestown, and eighty years before the Pilgrim

fathers landed on their rockbound coast.

On that far-off day bronzed and naked Indian warriors, who from distant and jagged mountain peaks had maintained for centuries their lookouts and guarded their barbarous and savage domain from invaders, noticed, with their keen vision and in the clear air, a dun colored dust cloud which hung low on the valley of a desert stream. It trailed lazily to the southward—a stream in later years to be known as the San Pedro River, but called by Coronado the Nexpa. Within this shifting dust cloud were sights strange to Indian eyes. What were these great four-legged beasts astride which men rode encased in glittering clothing? What of the other strange animals which shambled along in the rear of the long procession—sheep and swine and horned cattle? Here was a conquering host to take over this new land jointly in the name of the Lord God and the King-Emperor who claimed to be temporal ruler of the sixteenth century world. For uncounted centuries these new lands had been occupied by savage and for the most part nomadic and warlike tribes. Now for the first time in history they were to encounter a conquering race. The cross and the sword were twin symbols of empire—the armed men gave precedence to the gray-clad priests who led, side by side, with the men of war.

They entered what is now the State of Arizona, as determined by later historians, at a point in the San Pedro River Valley where the entry point of Naco now stands. Here the international line separates the towns of Naco, Sonora, and Naco, Arizona.

Now it would be well to turn to Castaneda, the historian of the expedition. Report has it that Coronado was instructed in writing at the outset of his *jornado* to "note whether the people you find are numerous or not, and whether they lived scattered or in communities; the quality, fertility, climate of the region; the trees and other vegetation, the animals, both domestic and wild; the terrain, whether rugged or level; the rivers whether large or small; the ores and minerals." Coronado and his followers, invading a true *terra incognita*, were wholly dependent upon four natural resources—water, food, wood, and forage. Lacking any of these his invasion was frequently delayed; lacking all of them, it could never have been attempted. Let us then follow Coronado in his journeys and note what Castaneda from time to time had to say about the "trees and other vegetation, the animals both domestic and wild" and compare conditions as the invading Spaniards found them with those of modern days.

As they followed down the San Pedro Valley, off to the east they saw the towering range of the Chiricahua Mountains with slopes heavily clad with Arizona, Apache, and Chihuahua pine, with pinon and juniper, with many species of oak, with Douglas fir, Engelmann spruce, and aspen reaching toward the pinnacles that lifted 10,000 feet above the sea. To the west they saw the Huachuca and Dragoon ranges, similarly clothed with virgin forests and grass "sometimes higher than the shoulder of a horse." As they proceeded northward to the juncture of the San Pedro and the Gila Rivers they passed towering Mount Graham to the right of their line of march—another huge mountain range clothed in dense forest. In the San Pedro valley itself grew heavy stands of cottonwood, willow, hackberry, mesquite to provide ample wood for cooking and for warmth.

The expedition must have entered the Gila River valley near the present city of Safford, Arizona. From there it struck northeastward, crossing the Black River and the White River within the present Apache Indian Reservation, and over the Mogollon Rim to the Little

Colorado River, near which now rests the town of Springerville. Thence down to the junction of the Zuni River with the Little Colorado, and from there up the Zuni to the famous seven cities of Cibola. This, the goal of the expedition, marked the entrance of the first white man, aside from Marcos de Niza, into what is now the State of New Mexico.

Of the abundant resources encountered by this group of conquistadores, the first description came from Castaneda. Unfortunately for history, he was first of all an argonaut, bitten with the gold fever as were all his fellow countrymen. Hence he left an incomplete picture of the natural resources. Trees, grass and wildlife with which the virgin land abounded, were neither gold nor gems. In the eyes of the conquering Spaniards they appeared of little or no value. Of the tree species which they must have seen and which still stand, they encountered cottonwood, desert willow, hackberry, mesquite, the Emory, Arizona, and Gambel oaks, ponderosa pine, Douglas fir, alligator and one-seeded juniper, pinon, walnut, mulberry, and maple. Of these, Castaneda noted in his journal, "There are junipers and pines all over the country." These must have been encountered for the most part after crossing the Gila River and then all the way along the route to Cibola and eastward towards the Rio Grande.

"The rest of the country," he wrote, referring to that north of the Mogollon Rim, "is all wilderness covered with pine forests. There are great quantities of pine nuts. The pines are two or three times as high as a man before they send out branches. They collect the pine nuts each year and store them up in advance." These pine nuts of which mention is so frequently made are the present day pinon nuts, very much in demand and sold by the ton. Later, in the winter of 1540-1541, when the army wintered at Tiguex in the valley of the Rio Grande, Castaneda said that the natives "gather great quantities of brushwood and dry it to use for cooking all through the year." The native population had no beasts of burden and hence no means of hauling fuel wood for long distances. This "brushwood" must have been gathered from among the cottonwood groves which lined the river valley for countless miles.

Of wildlife which the army must have noted on the route down the San Pedro, across the Gila, up over the Mogollon Rim and thence to Cibola and the Rio Grande, the worthy historian has this to say: "There are large numbers of bears in this province and lions and wildcats, deer and otter." Among the bears must have been innumerable grizzlies, later exterminated from the region by Coronado's successors. He must have confused the otter with the beaver, still present but greatly reduced in numbers. Nowhere does he mention the countless thousands of antelope which roamed the region from the San Pedro to the Great Plains; nor the bighorn sheep, nor the elk, nor the literal millions of quail which must have been encountered. True, he made mention of the wild turkey, not in its native element but those few domesticated by the native people, for he wrote of seeing in the Rio Grande settlements "cocks, with great hanging chins."

Of the immense and virgin grassland areas, crossed by the army of exploration, in valleys and mesas, on plains and on mountain slopes, Castaneda for a wonder left a brief but glowing description, no doubt being most impressed with the various species of grama and bluestem and bunch grasses and the short buffalo grass of the high plains region.

Of all the forested areas which covered the greater part of the route of Coronado's army until it journeyed



into the treeless region of the Great Plains in the fruitless search for Quivira, their present day status is as follows: National forests exist adjacent to and upon his route. In Arizona the Coronado National Forest takes its name from the conquistador himself. Farther north lies the Crook National Forest. The Sitgreaves, Kaibab, Apache and Coconino national forests for the most part are north of the Mogollon Rim in the great ponderosa pine belt. The San Carlos, White Mountain and Navajo Indian reservations, as well as the Grand Canyon National Park, all lie for the most part within that area described by Castaneda as "the rest of the country is all wilderness covered by pine forests." The Grand Canyon was first made known to the world by Cardenas, a lieutenant of Coronado's.

In New Mexico, the forested areas invaded by the army include portions of the Zuni, Navajo, and Acoma Indian reservations, the Cibola National Forest (another name originating from Coronado and his times), and the Santa Fe National Forest. From this point, Coronado on his eastward travels struck north into the region of few trees but a world of grass. A little to the east of the route over the Mogollon Rim, Arizona now has a most imposing highway, the Coronado Trail.



U. S. Forest Service

As Coronado may have seen it—for National Forests today lie along the route he took—one is named for the Conquistador himself. The Coronado Trail runs through two national forests, "winding through great pine and fir forests"

Of the balance of Coronado's *jornado* all that can be said in this narrative is that after wintering his army at Tiguex, near the present town of Bernalillo, New Mexico, in the Rio Grande Valley, he searched the region to the northeast in another epic march. This led from the Great River to the Great Plains, the "Llano Estacado" of later days, along a route which crossed portions of what is now Texas, Oklahoma and Kansas. Here after leaving the Pecos River region, he encountered no forests but, as Castaneda recorded, "For 20 leagues they had seen nothing but the cows and the skies." Castaneda's

"cows" was the first description by a white man of the American bison. Disappointed again in finding no gold during the months of his wanderings, Coronado turned again towards the Rio Grande, and early in April, 1542, led his depleted army back to Mexico City.

Francisco Vasquez de Coronado was an unfortunate conqueror. In finding gold and jewels he failed miserably. As an explorer his name ranks high in history, but in his times, a conqueror or explorer who did not return loaded with the wealth of the Indies was given little honor in his home land.

Zuni Pueblo today, site of the famed Seven Cities of Cibola, goal of Coronado's journey and marking the first entrance of the white man, save one, into what is now the state of New Mexico

U. S. Indian Service





The beautiful sweep of the Cascades visible from the Lookout—which is situated on the left of the two pointed peaks in the distant center, Goat Flat in the foreground

## SUMMER VACATION : By R. W. CRAIG

Photographs by Harland Eastwood

IF YOU are a happy, contented citizen of the lowlands and have never expressed a desire to be a forest fire lookout atop a peak during the summer, don't read this. But if you are one of those misguided souls,—and your number appears legion,—who thinks it both romantic and enjoyable to sit out the summer watching for the fires John Q. Public insists he did not start, then this is written for you.

Make believe that for the summer of 1940 you had drawn this station—the Three Fingers Lookout in the Mt. Baker National Forest, Washington—and the following is a reasonably accurate account of what you would go through. It is not representative of all lookouts—the majority have roads to them; but on probably no other lookout would you have to cross a glacier anytime you wanted to go anywhere. It is not quite the most isolated station in the woods; you would see some ten or twelve people during the summer,—some lookouts see no one; and, finally, it is undoubtedly one of the most beautiful spots in the Cascades.

Within a week, plus or minus, of the fourth of July you will trek in some ten miles to a trail camp. The man who built that lean-to had webbed feet. The frogs and the mosquitoes play ring-around-the-rosy about your campfire, when you get enough snow melted to build one. Then you spend ten days hanging phone wire and clearing logs from the trail. Anyone who thinks that hanging wire that is buried under three to six feet of snow is a cinch is as crazy as the man who built the lean-to. For four miles you fight this wire up the hill; the last mile you run out of timber and hang it along a ridge that drops off into an accurate facsimile of the view from the top of Everest. That's all good vacation, too.

When you have the wire that far you call down and tell the



A rare lookout—from which you have to cross a glacier whenever you want to go anywhere



A close-up of the lean-to on Goat Flat on Three Fingers Trail—where the packer says good-bye and leaves you to your fate!

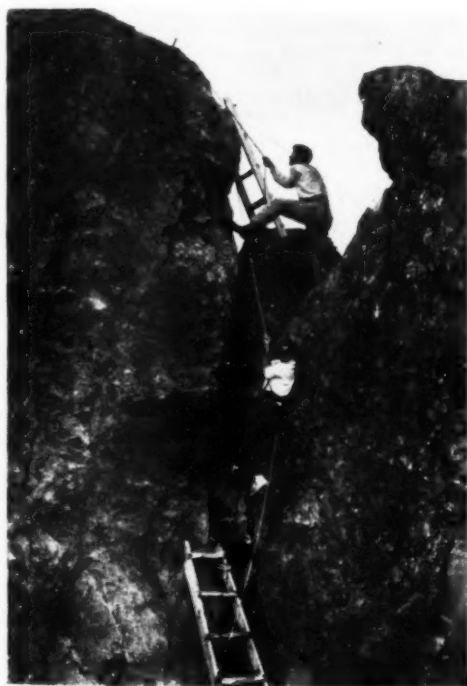
office that they can send the packer up anytime with your season's supplies. It's fun ordering supplies for such a station. You buy your own and take them in the first of season. If you run out you get quite hungry, and if you have too much you have to leave the surplus. It takes a magician to break even.

The packer comes in and packs your three hundred pounds of assorted junk to the jumping off place. This entails carving one mile of trail out of snow



The last stretch is always the longest—former Lookout Eastwood and his wife on the last lap up Three Fingers

C. M. Kuppler



C. M. Kuppler

A tough approach—the ascending ropes and ladders to the Lookout are no sinecure

banks that lie on a jittery angle. If a mule ever took off he would make the Olympic bobsled team green with envy, and when he hit, there would be more pieces of pack and mule than there are parts in a model T. That is what nearly happened to my radio.

The jumping off place is where the glacier begins, and from now on your phone line ceases to be good old sturdy No. 9 iron wire and becomes tiny insulated stuff lying slackly across the glacier. One mile of that you have to lay; later in the season you will have to pick it up again. Here the packer dumps off your supplies and you and he sit down for the last cup of coffee brewed over a fire built of the boxes that held the former hermit's supplies. You sit over the hump in the lee because the wind always howls through this notch—always. And it is cold. The packer points out the place where so-and-so fell off the ledge when they were building the lookout. He lived, but he broke more bones than I thought could be found in an anatomy book. Way up there—that little grey blob on that finger of rock—is where you are going to spend the next two months. It looks like one hell of a long way up from here, and you are right.

As you watch the packer leave you mentally review his parting words and read between the lines, "Not a bad looking fellow. Too bad!" The packer is not a cheerful soul and manages to leave the same impression with every new man. You shiver a little and prepare to pack up to that little grey blob. You take just the things you are going to need for supper and breakfast and your sleeping bag. Everything else goes under the big tarpaulin and is weighted down with rocks. You strap on your crampons, grab your ice ax and take off on the glacier. You have to drop five hundred feet and you curse every

Mrs. Eastwood steps out (and she must step out and be careful not to step off!) to take a walk in the backyard



foot of it; it all has to be regained, along with another thousand just like it. You had better know more about back packing than the packer does about mule packing, for that is going to be your business for a while.

Across the glacier, up the rock, up the last snow (a miniature glacier), around a shelf, into a crack, up sixty feet of ladder and here is the house. You are so fagged that all you want to do is lie down and hibernate. But you can't. The sun is going down and you have no water and the shutters are not up yet. Down to the snow for water and back up. Then the shutters. You smoke a cigarette while surveying the scene. Obviously the east and west shutters are going to wait till morning. There is a four inch shelf to stand on, and it is not secure, and if you step backwards you will drop four hundred feet, hit that slight projection and probably make the last 1,800 feet without a bump, not that it would matter. The west side is not so bad. One hundred feet, bump, then five-hundred, then what is left slides down another thousand feet of very steep glacier. So you put up the north and south shutters and have so much trouble that you shudder when you think of the others.

All evening you tinker with the telephone, a mysterious gadget that custom of unknown origin says you must take off the wall and put on the floor when closing up the station. I crossed them up one fall by leaving it on the wall and it worked better than ever the next year. You have four wires, two from the batteries and two from the outside, one ground and one line. Inside the phone there is an impressive array of terminals. The game is to keep juggling terminals and wires until you get that phenomenon called line noise which indicates that you and civilization are again on speaking terms. This is complicated by there being several more terminals than wires, and I have yet to discover the man who knows why they are there. All this is simplified, of course, if you know anything about telephones.

Being above timberline any and all cooking is done with gas or kerosene. Whether the one or the other, the common characteristic of all such stoves is the wide disparity between their performance and the manufacturer's advertised idea of same. Several years ago upon arriving at a high station I found a cooking stove, a heating stove and a gasoline lantern. After four hours of experimenting and cursing the man of the year before, (who probably had the same trouble but more patience), I put the cooking stove under the bed, threw the heater over the cliff and stowed the lantern in the attic. Being some few feet and a glacier's width from timberline and wood I gave the cooking stove every opportunity possible to live up to its reputation. It had the hiccups. After a flame had been induced to stay lit for a moment I would pump madly until it blooped up in one glorious and inefficient column of smoky pyrotechnics that singed the ceiling only to die down to a scarcely perceptible flicker. If I relaxed on the pumping this violent cycle of bloop-flicker, bloop-flicker would keep up of its own momentum for a minute or so then would cough quietly and die. The pumping necessary to heat coffee water would, if so applied, keep the bilges of the *Queen Mary* bone dry for a week. With the materials at hand, box ends, scrap lumber, etc., I managed to cook for some twenty-five days until headquarters got around to getting another monoxide generator up my way. I got so I could cook a six course meal with one egg erate.

Once firmly established with enough supplies topside to obviate a nightly trip for more, the old bugaboo Monotony will set in, or, if you are that sort of person, loneliness will get you. The former you can lick, but it takes experience. The object is to make the long day

appear shorter. When from six to six you have to keep an eagle eye on some 250 square miles of territory and spot every whiff of smoke that becomes a problem. Eating breakfast at noon helps, then lunch and supper come whipping around in rapid fashion and quite often you eliminate one, which saves food. Playing solitaire may help but it grows on one till you find yourself spending all your waking hours madly dealing out cards in a vain attempt to chisel on the law of averages. It is the long stretches of hot, dry weather than get you. One day is so much like the last that you lose all track of how long it has been since it rained. And when the hot spell breaks, the chances are fifty to one it will break with a lightning storm.

A lightning storm is a headache. In the first place you have to keep in touch with headquarters as long as possible telling them the location, type, speed of the storm, and a dozen or so other little items, all this while wondering just when the lightning is going to hit either your line or close enough to your line to use you as a grounding post. Then, when you have sated the curiosity at headquarters you dash outside and throw the switch and make a dive under the insulation again. All such houses are insulated, that is, they are the point of a pointed net of wires draped over the mountain, the function of which is partially at least to discharge your half of this cloud to ground condenser. This is, of course, pure theory. It works, as do all good theories, but not entirely. There are occasions when the charge builds up too fast for the system to take care of it, then you have the unique experience of lightning hitting just a few feet over your head. This makes a loud noise, burns off inches of your lightning rod and disrupts your peace of mind.

While all this is going on there are spooky looking blue fires hissing balefully on the tips of most everything and you are very busy indeed trying to make a tally of all strikes, whether they are cloud to ground, or cloud to cloud, and if the former did they start something burning. Mostly they did. When, twenty minutes to four hours later, the storm has passed to what you think is a safe distance,—and the chances are it isn't,—you rethrow the switch and try to get headquarters. You probably will not get them, in which case there are several lines of reasoning: your phone line may be burnt out somewhere, headquarters may have its switch thrown (the most probable probability), or your phone itself has somehow taken one on the chin. If you do get them, as eventually you will, you report all the fires you can see burning and a joint prayer is offered for a good, earnest rain.

You are what is known as a primary lookout, which means you are aristocracy and do not chase fires except in case of dire emergency. However, if there is a fire within four hours' walking distance you will find this is just that sort of emergency. You take off on a high lope for the nearest fire (there are indubitably several), make a rapid survey, do what you can to stop its immediate spread and lope back to the closest phone line. The proper technique is to ask for three times as many men as you are sure you will need. This takes care of both the difference in fire acreage when you last saw it and when you will next see it, and the fifty per cent cut that headquarters always applies to your requests for fire fighters.

That rain you so blithely prayed for not so long ago will come. It will drizzle quietly down your neck for the duration of the fire, it will soak your blankets (if you have some), it will, in general, make your life a case of borderline value, but (Continuing on page 334)



# STATE FORESTRY

## An Appraisal of Its Needs and Place in a National Program of Conservation

By H. A. SMITH

State Forester of South Carolina

NATIONAL conservation of natural resources whether for peace time prosperity or for national defense can not safely ignore the part which the states, singly and collectively, must and should play. Of the forty-eight states, which comprise the continental United States, thirty-nine today have state forestry organizations, and in addition three are engaged in forestry activities through duly designated representatives from state agricultural colleges. With a few exceptions, such as New York, Massachusetts, and Pennsylvania, state forestry organizations are composed of small bodies of men under the direct administration of a state forester appointed by a state commission or board known as the Department of Forestry, the Commission of Forestry, the Department of Conservation, or similar title.

Conservation today takes on new importance because of the urgency of national defense. A country's natural resources sustain its defensive and combatant power. This is true of forests no less than oil and other natural resources. It therefore seems timely to appraise the state forestry organization from the standpoint of its present standing and needs, its responsibilities, and the part it should play in a national program of forest conservation.

State forestry organizations in general are charged with promoting forest protection and improved forest practices on privately owned forest lands; with the administration of state forests, and less frequently state parks; with the enforcement of state laws relating to

In recognition of their great, though often unheralded, contribution to forest conservation, **AMERICAN FORESTS**, on this and following pages introduces pictorially the men responsible for state forestry work throughout the nation. They are the State Foresters, or those in charge of forestry projects in the states.

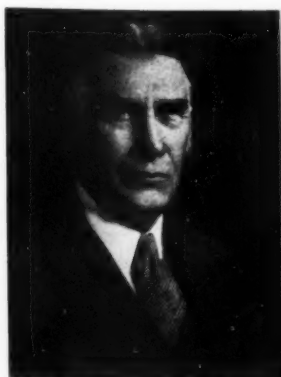
forests and forestry; with educational programs designed to prevent forest fires and to promote improved forest practices, better forest management, reforestation of idle lands, and intelligent utilization of forest products.

Less than twenty-five per cent of the forest land of the United States is owned by the federal government,

so the duties of the state foresters and their organizations extend to more than seventy-five per cent of the forest land area of the nation. The state objective is the same objective as that of the national government—better utilization of forest soils, better protection of forest resources, stabilization of industries dependent upon forest products, and increase of income to the people. Considering the fact that 450,000,000 acres of forest land are in private ownership, the importance and magnitude of the average state forester's responsibility becomes apparent.

A typical state organization consists of a state forester as administrative head, an assistant state forester in charge of protection through whose operations the bulk of the money is expended, an assistant in charge of forest management concerned with the production and distribution of forest tree seedlings and the securing of improved forest practices. Sometimes there is an assistant in charge of public relations or educational work, including the handling of the news releases, moving picture shows, bulletins, and pamphlets. And sometimes there is an assistant in charge of state lands.

This small group works through district foresters in



F. W. BESLEY  
Maryland



C. P. WILBER  
New Jersey



G. ALBERT STEWART  
Pennsylvania



W. S. TABER  
Delaware



**JAMES O. HAZARD**  
Tennessee



**GEORGE O. WHITE**  
Missouri



**LLOYD F. SMITH**  
Kansas



**K. G. McCONNELL**  
Kentucky

the field, varying from two and three to twenty-five and thirty, depending upon the state. Districts range in size from one to four million acres of forest land, and the district foresters bear the brunt of the contact with the landowner. Upon their ability and success depends the progress made in the various phases of the state's forestry program. In protection work, the district forester has some assistance from his rangers, wardens, towermen, and his fire fighting crews, but in the technical work he and he alone, unless he be provided with an assistant, which is rare, must bear the brunt of the work.

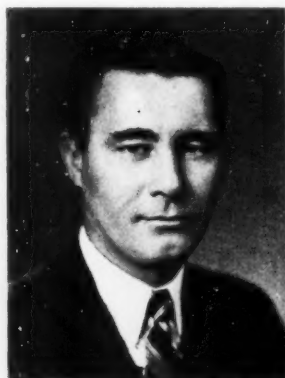
That is the personnel of the average state forestry organization today—a dozen or less men upon whom falls the task of forest improvement on privately owned lands, of helping landowners to plant trees, of creating interest in forest fire control and setting up protective organizations, of holding meetings with farmers to demonstrate better cutting practices, of assisting cooperative marketing programs, of establishing and maintaining state nurseries and of conducting educational work in schools and other organizations throughout the state. That is the organization that is responsible for the state forest program and the recreational and economic development of state forests. That is the organization that is responsible for the local news items, bulletins and pamphlets, the moving picture shows, the speeches before the service clubs and the women's clubs, the production and distribution of forest tree seedlings.

Seventy-five per cent at least of the entire forest prob-

lems of the nation falls upon the shoulders of the state forestry organizations today and that seventy-five per cent is potentially the most productive forest land in the United States. State programs recognize that regardless of the degree to which public ownership may go within practical limits, the bulk of the forestry problem must still be in the hands of the private landowners and the landowners are capable, and to a large degree willing, to solve it if given county, state, and federal cooperation.

All of the forestry work on private lands, of course, is not being done by the state foresters. They are receiving a great deal of assistance from corporations, groups of landowners, local political subdivisions, and directly from the federal government through assistance in forest protection and the production and distribution of forest tree seedlings, and indirectly through the national forest division of the federal Forest Service, the Extension Service, the Soil Conservation Service, the Triple A—through practically every branch of the Department of Agriculture. The Civilian Conservation Corps, both under the Department of Agriculture and the Department of the Interior, has done much to increase the interest in forest land.

It is pertinent to analyze for a moment the activities of the federal government in this forestry program in so far as they affect private forest lands. The federal government spends money through the state forestry organizations for educational activities in forestry. It also spends money for educational activities in forestry through the Extension Service, through the Soil Con-



**ANTON J. TOMASEK**  
Illinois



**O. A. ALDERMAN**  
Ohio



**HERSCHEL A. WOODS**  
Indiana



**JOHN H. FOSTER**  
New Hampshire



PERRY H. MERRILL  
Vermont



RAYMOND E. RENDALL  
Maine



H. O. COOK  
Massachusetts



AUSTIN F. HAWES  
Connecticut

servation Service, and through the Agricultural Adjustment Administration. The federal government also spends money through the state forestry organization for the production and distribution of forest tree seedlings. It also spends money for that same purpose through the Extension Service and through the Soil Conservation Service, as well as through the Forest Service and the Soil Conservation Service for securing improved practices upon privately owned lands.

In no case are any of the expenditures made through any agency sufficient to give to the organization through which they are expended the prestige and the importance that is necessary in order to make a real impression on the job to be done. State forestry organizations are producing and distributing forest tree seedlings to landowners other than farm landowners. The federal government does not participate financially in that program. State forestry organizations are administering state-owned forests with objectives identical with those of the national forests, but the federal government does not participate financially in that program. State forestry organizations are participating in general educational programs looking toward improved forest practices; and the federal government is participating financially therein only indirectly through their protection and reforestation programs.

Some thirty per cent of the forest land of the nation lies upon farms. Some twenty-five per cent is federally owned. Presumably then forty-five per cent lies outside of farms. In so far as forestry goes on that forty-five

per cent, the federal government contributes not one single penny except in the control of forest fires and a hundred thousand dollar item for the nation in forest management. The Clarke-McNary Act of 1924 concerned with forest protection is practically the only federal legislation that recognizes the existence of seventy per cent of the privately owned forest land of America today from the standpoint of production and it might be well to examine that cooperation.

At the time the act was passed, the Department of Agriculture adopted a policy which stated that fifty per cent of the cost of protection within the state would be met by the federal government. Because of that act and policy, the majority of the state forestry organizations of the South came into being. The cost of adequate protection in the United States is eighteen million dollars. Congress has never authorized an expenditure equal to fourteen per cent of that amount. Reimbursements to states for the fiscal year 1938-39 for expenditures made, represent less than twenty-five per cent of the moneys actually expended for forest protection. In my own state of South Carolina, less than eighteen per cent of the fire control budget for the present year is coming from the federal government.

Year after year, state forestry organizations have called this to the attention of the federal government with practically no results. The maximum authorization instead of nine million dollars is two and one-half million and the actual appropriation is even less than that, and we are informed indirectly that the money to be ex-



E. K. THOMAS  
Rhode Island



WILLIAM G. HOWARD  
New York



F. C. PEDERSON  
Virginia



D. B. GRIFFIN  
West Virginia



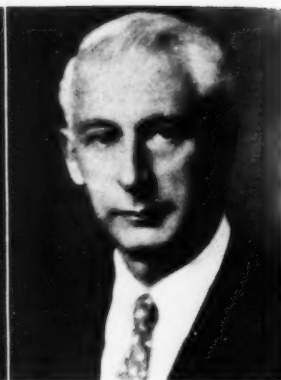
H. A. SMITH  
South Carolina



HARRY LEE BAKER  
Florida



W. C. HAMMERLE  
Georgia



JOHN S. HOLMES  
North Carolina

pending in matching state appropriations for the year 1940 will be some ten thousand dollars less than the preceding years.

It is a recognized fact that the federal government is contributing to the production and distribution of forest tree seedlings for private land-owners upon farms. Not one penny of that money can be used for the production of forest tree seedlings for use upon privately owned lands outside of farms.

All of this may seem critical and to imply that the state forestry programs are not making progress. The state forestry organizations are making progress and any progress they fail to make is certainly not due solely to any activity, or lack of activity, on the part of the federal government. But there is within the whole forestry program outside of the state forestry organizations a lack of recognition of the extent of the forestry problem upon privately owned lands, the relative cheapness by which successful forestry may be brought into play upon those lands and the social advantages that will accrue.

One gets the impression that there is within the federal government a desire to practice forestry in a *dramatic* way. This point was brought home to me within the past winter. I spent the larger part of two days with representatives of a dozen bureaus of the Department of Agriculture on a trip through South Carolina—a trip which covered every other Southern state—and within every other Southern state, I am informed, practically the same impression was obtained by those concerned with private forest lands. Upon that trip were

representatives of the Bureau of Agricultural Economics, the Farm Security Administration, the National Forest Service, the Soil Conservation Service, the Triple A, the Land Banks, the Rural Electrification—all agencies, in fact, of the Department of Agriculture that are concerned with land use.

In my state we passed through counties containing millions of acres of forest land. We passed through good farms and poor farms. We passed eroded fields and fields that were being adequately cared for. We passed splendid farm homes and we passed homes that were a blight on the civilization in which we live. We passed through an area that had declined so far that it had to be acquired by the federal government. We passed through an area that was so far gone that the Soil Conservation Service felt it advisable to set up a demonstration area, giving away trees and seed for strip cropping. And as we drove through the country-side, we stopped for a while upon the lands of a national forest and some of the representatives were sufficiently interested to make a side trip over the forest to see the type of land, people, and buildings. We made a stop at the demonstration of the Soil Conservation Service to examine activities where the federal government had provided everything.

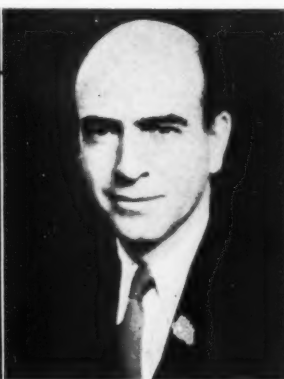
We passed through hundreds of thousands of acres of privately owned forest land—land of farmers and others where the landowners were not asking to be given forest trees or to have forest trees planted for them, where the owners were not asking that we do the whole



P. J. HOFFMASTER  
Michigan



H. W. MacKENZIE  
Wisconsin



H. G. WEBER  
Minnesota



M. B. PRATT  
California





**NELSON S. ROGERS**  
Oregon



**VICTOR V. FREEMAN**  
North Dakota



**FRANKLIN GIRARD**  
Idaho



**RUSSELL E. FORD**  
Colorado

job of keeping the fire out of the woods, where they were not asking that we thin their woods, or sell their timber for them. Many of these were landowners who were not asking for federal benefits in any manner, shape, or form. All that they wanted, all that they need is advice and assistance in the handling of their woodlands, a more intensive program of assistance in marketing, an assurance that they can buy their forest tree seedlings at a reasonable price, technical information and service in which they are willing to participate in the cost. That is all that they need. Relatively their forest lands when compared with properly managed forest lands are in far worse condition than the most eroded hillsides of crop land when compared with properly managed hillside fields.

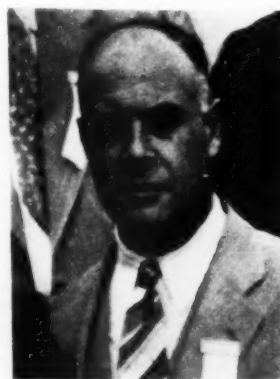
But as we rode along upon that trip, it was extremely difficult to get our visitors interested in such conditions. Mile after mile we drove through such woods and the interest of the representatives of the Department of Agriculture seemed to be aroused only when we came to those conditions which were so extreme that government ownership, or direct federal grants for the whole job were practically the only solution. There seemed to be a complete lack of realization of the fact that in the area through which we passed there were hundreds upon hundreds of thousands of acres of land upon which reasonable cooperative assistance on a fifty-fifty basis was all that was necessary to keep the lands from declining to the extremes which apparently they have to reach in order to attract federal attention.

The whole trip was a revelation to me in that I realized for the first time the lack of interest that America can have where a program of prevention is necessary but what unlimited resources she is willing to put forth when preventative measures not having been applied, the client reaches the end of his rope.

This discussion has confined itself thus far to the general make-up of the state forestry organization, the problem which it has before it, the similarity of objectives between the national forest and the state forest programs, the lack of appreciation of the state problem by those not closely in contact with it, and the relationship which today exists between the federal and state programs. An effort has been made to bring out that the state forestry programs are making progress but that by virtue of the size of the job, there is much—very much yet to be done.

In discussing what is needed in order to strengthen state forestry, the first question is—wherein lies the responsibility for that strengthening? Of necessity, that responsibility must be upon the people of the state. They must recognize the situation which exists. They must recognize the importance of private land forestry and accept the responsibility for carrying their share of the burden. That responsibility must be evidenced through the state government and the state forestry organization.

There is another responsibility, in my opinion, and that is the responsibility of the federal government to join in partnership with the state on a more equitable basis in the solution of problems which are admittedly



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Montana



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Texas



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Louisiana

national as well as state problems—the problems of conservation. There is a responsibility upon the federal government, in my opinion, to accept the leadership in the conservation program, not alone in furthering the national forest program which it has so effectively and efficiently undertaken, but a leadership in the solution of private landowner problems—a solution which might eventually find its answer in public regulation but only after public cooperation has first been tried.

There is a third responsibility equal in importance to the two already mentioned and that is the responsibility of the state forester and the state forestry organization to take leadership within the state; to eliminate petty jealousies and friction; to submerge local likes and dislikes for the benefit of the problem as a whole; to eliminate the bitterness so frequently encountered today as the result of alleged conflicts and usurpation of power; to sit down with accepted leaders and work out a national forest policy for privately owned lands that will give private owners an opportunity to solve their own problems with government assistance, without unwarranted government interference; the responsibility in short of recognizing the broad forestry problems of a great nation and their importance to the social and economic life of our people.

A further word here about the state forestry organizations. Most of them have come into existence within the last twenty years. Conceived in doubt and hesitancy, born amid poverty and controversy, these state organizations have carried on the battle for conservation on pri-

vately owned lands against handicaps of tradition, ignorance, and policy with which few people are familiar. For years many of them have struggled with appropriations of four, five, ten, and fifteen thousand dollars and with that money they were supposed to solve the forestry problems upon seventy-five per cent of the forest area of the nation. State forestry organizations have fought for every penny they have ever earned—fought against inertia, precedence, politics, and poverty.

State foresters have bumped their heads against the stone wall of poverty for so many years that today many of them are afraid to express the magnitude of the job before them because of fear of the reaction should the real cost of the problem be recognized. By the same token, state forestry organizations have become afraid—afraid to try new things—afraid to venture into new social fields without first having old problems definitely settled. Surely theirs is the responsibility to take unto themselves a new life, a broader vision, a more receptive attitude, and a more progressive program.

To return to the question of what can be done to strengthen the state organizations: First, recognition by all forestry agencies of the magnitude of the program as represented by privately owned forest lands.

Second, recognition of the fact that the practice of forestry upon privately owned forest lands is obtaining and will obtain identical results as the federal program of national forest acquisition.

Third, having recognized these things, the federal government must participate (*Continuing on page 336*)



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Iowa



EARL HAMMERQUIST  
South Dakota



CLAYTON W. WATKINS  
Nebraska



## THE CCC AND NATIONAL DEFENSE

By JAMES J. McENTEE

This comprehensive appraisal of the Civilian Conservation Corps and its new objective of national defense was prepared by its new director, James J. McEntee, while the President and Congress were seeking early in June to formulate plans for its place in the national defense picture. At the time of going to press the final disposition of the CCC had not been determined—EDITOR

THE Civilian Conservation Corps has a new objective as it marches forward in its eighth year. It is national defense. Under the impact of chaotic world conditions threatening the security of the United States, the President and Congress have called upon the Corps to take an active part in the prosecution of the huge new national defense program.

For the present the Corps' contribution will come largely through the training of young men in the maintenance and operation of automotive and mechanized equipment, in auto mechanics at central repair shops, in radio communications, and in other civilian activities useful in national defense. Through this program—largely an intensification of the CCC training activities which have been underway for several years—the Corps can provide thousands of men each year to aid industry and the nation in the advancement of the national defense program.

As fast as the needs of industry and the national defense departments are made known, the Corps will modify its present program to comply to the limit of its ability. If industry wants men with special mechanical training in either the automotive or aviation fields, the Corps is prepared to train them. If the national defense department wants specialists in such fields as communications and operation, maintenance and repair of mechanized or automotive equipment, the Corps will train men in these fields. In short, it will be a huge reservoir of trained man-power upon which industry and the national defense services can draw.

In advancing national defense preparations the Corps will continue and intensify its man-building activities. Since it was organized in April, 1933, the Corps has made men out of hundreds of thousands of undernourished, underdeveloped and inexperienced youngsters. In addition to improving the muscular development and the health of young men, the Corps has toughened them physically, taught them work skills, improved their morale, and taught them love and respect for their country and its government. To date more than two million young men have received such training. It has completed a huge amount of conservation work—work which increases the nation's natural resources assets. In addition, it is an operating institution. It has the equipment, the organization, the experience to succeed in any task asked of it.

At this time, so far as we can foresee now, the addition of national defense tasks will not materially interfere with the advancement of the Corps' conservation program. There are many fields in which for seven years

it has been contributing to national defense. It trains radio men, mechanics, cooks, truck drivers, operators of tractors and heavy equipment, photographers, drafting clerks, and experts in the handling of explosives for construction work. It teaches men to build roads, stone and wooden structures, to operate surveying instruments, to build bridges and dams and to do a host of other things of the type done by engineer troops in time of war. It teaches them sanitation, personal hygiene, and safety.

What of the Corps' educational and training program? The Corps today is providing practical job training for enrollees while they are at work. It provides an educational adviser, classrooms, shops, and instructors for all enrollees who wish to take advantage of their off-time to improve their education and develop skills.

The goal of every youth who enters the CCC is a job. Our program is centered around the idea of making each youth capable of getting employment. The entire pattern of camp life is directed toward the end of helping the boy find a useful place in society where he can earn his own living. It can and should take advantage of its unusual opportunities to teach these youths how to work, with hand and brain, how to use tools and equipment available in the camps. It should teach them a sense of responsibility for doing good work, permanent, lasting work—and above all, it should teach them to do an honest day's work.

Those of us in charge of CCC policy should be alert to keep our educational and training programs abreast of the times. In this critical period, I feel the Corps should emphasize its training especially with regard to mechanized units of all types. The Corps affords unusual opportunities for training of this character because it operates daily the largest fleet of peacetime motorized units in the world—a fleet in excess of 40,000 units.

This great fleet, with its daily problems of operation, maintenance and repair, presents a chance for practical training which the Corps will use to the fullest advantage. The Corps operates tractors, jackhammers and other mechanical units. It utilizes tools of almost every description. Camp facilities for sanitation, lighting, and water offer additional training advantages.

The Civilian Conservation Corps also should continue to stress the development of physical hardihood, the inculcation of habits of orderliness, discipline and personal hygiene and good citizenship and love of country. The academic, vocational and job training features of camp life should be directed to turning out good Americans.

Should the CCC be made permanent? My desk is piled high with requests from communities for location

of camps. The work projects proposed in our fields, forests, wildlife refuges and parks would keep the Corps of the present size occupied for from thirty to fifty years. From another angle, each year sees another crop of youths reaching young manhood and a large percentage of them unable to find jobs, either because of employment lag or their own inexperience. Until such time as these youths can be absorbed in private industry, business and agriculture, I believe there is justification for continuance of the CCC. I believe it should be made permanent.

In recent months some criticisms of Corps expenditures have developed. While praising the Corps as a whole, some critics have taken the position that the \$1,000 a year which it costs to maintain a young man in the Corps for one year is too high. In this connection the charge is usually made that too large a share of the \$1,000 enrollee annual cost goes to civilian personnel. These attacks may be attributed largely to lack of knowledge of how CCC funds are expended, a misapprehension of Corps objectives and Corps accomplishments or policies.

A breakdown of this \$1,000 a year enrollee cost figure shows that \$790 is expended in the form of real wages for the enrollee and \$209.91 for pay of civilians, supplies and equipment. Of the \$1,000 total, the enrollee allots home to dependents \$264. If this sum is eliminated from the \$1,000 item and charged against relief expenditures, the cost of maintaining a boy in the Corps for one year, excepting relief charges, would be \$736.

The real wages paid each enrollee, including his \$30 a month cash allowance (\$22 goes to his dependents) and all other items which he would receive if he were working for a private employer, is \$790.09. It is broken down as follows:

Pay	\$374.43	
Subsistence	139.86	
Clothing	60.00	
Travel	32.41	
Hospitalization	18.39	
Limitation sub-total		\$625.09
Shelter, including construction, rehabilitation, heat, light, water and routine maintenance	50.97	
Laundry	5.16	
Education	13.34	
Welfare	.42	
Burial Expenses	.31	
Sub-total		\$ 70.20
GRAND TOTAL		\$695.29
General Supplies	1.95	
Sanitary Supplies	1.31	
Soap, candles, matches, etc.	1.20	
Bedding, etc.	3.30	
Safety equipment, such as fire extinguishers, etc.	1.13	
Mess equipment	.31	
Ambulances and trucks	8.37	
Work equipment	31.48	
Repairs to the above	38.80	
Transportation of above	6.95	
Sub-total		\$ 94.80 94.80
TOTAL REAL WAGES		\$790.09

The following table shows how the \$209.91 is utilized:

Pay of civilians	\$190.23
Travel of civilians	4.18
Passenger cars	2.79
Communications	1.97
Rents	2.09
Office supplies	.88
Office equipment	1.02
Repairs to equipment	.47
Transportation of above	1.09
Structures	1.96
Printing and binding	.75
Claims	.15
Miscellaneous	2.33

#### TOTAL OVERHEAD COSTS

\$209.91

The above figures include the pay of the Camp Commander, the project superintendent who supervises the work program, the foremen who supervise directly the work projects, the educational adviser, the camp doctor, the camp chaplain—in short, the men who manage the camps, teach and train the enrollees and look after the health and spiritual welfare of the enrollees.

These figures, based on seven years' operation of the CCC camps, represent the amounts which the Director, the War Department, the Departments of the Interior and Agriculture consider necessary for a proper carrying out of Corps functions. Every cent being expended on the program is needed if our objectives are to be carried out efficiently. It is futile to try to determine whether CCC costs are too high by simply dividing the average number of enrollees into the total appropriations for the year. The big determining factor is to be found in our record of accomplishments. Are we getting our money's worth in terms of trees planted, forests and parks improved, new recreational facilities developed, farms saved from erosion, floods checked? Are we getting value received in better citizens—citizens capable of earning their own living, interested in the welfare of their country and better qualified to aid in its defense? I am confident that on the basis of value received, the Corps is much more than paying its way.

What about the Corps' future work program? In what direction should its energies be directed to best advantage? Whatever suggestions I make in this connection, of course, are subject to modification by the national defense program. The program, as outlined below, is given without reference to possible modifications which national defense considerations might entail.

In considering the Corps' future program, it may be well to recall the original purpose and scope of the CCC, as set down by the President and in Acts of the Congress. These were originally two-fold—unemployment relief and "restoration of the country's depleted resources" as stated in the original Act of 1933. The President himself in his message of March 21, 1933, to the Congress stated: "I propose to create a Civilian Conservation Corps to be used in simple work, not interfering with normal employment, and confining itself to forestry, the prevention of soil erosion, flood control, and similar projects . . . I call your attention to the fact that this type of work is of definite, practical value, not only through the prevention of great present financial loss, but also as a means of creating future national wealth."

The Act of March 31, 1933, in its opening statement gives as one of the primary purposes of the ECW "to provide for the restoration of the country's depleted natural resources . . . in con- (Continuing on page 320)



# WALKING IN THE WILDERNESS . . . .

By DEVEREUX BUTCHER



We first hit the Long Trail where it runs east of Bennington, in the Green Mountains of Vermont. The main trail, marked with white blazes, runs northward to the Canadian border

ALONG the forested ridge of the Green Mountains of Vermont runs The Long Trail, a wilderness footpath, winding through valleys and over peaks from the Massachusetts line to the Canadian border for a distance of 260 miles.

We hit the trail where it passes east of Bennington, and from White Rocks Lookout near the summit of Bald Mountain had our first big view of Vermont. Below spread the Bennington Valley; westward beyond the checkerboard of farms were wooded hills; then the Hoosic Valley in New York and more hills fading away into the haze.

A branch trail led us here. En route we had paused in the old meadows on the lower slope to feast on wild raspberries. Once we stopped to photograph a plant of purple-fringed orchis and somewhere

in the big timber high up the mountain a covey of ruffed grouse flew up at our approach.

In the valley of Glastonbury Stream east of Bald Mountain the main trail, always marked with white blazes, runs northward. Near the junction of Hell Hollow Brook we came to Fay Fuller Camp, one of the many such camps provided for the hiker that we were to see. This one was a picturesque little building with rugged stone walls and a chimney at each end. Inside were decks of bunks. The floor was of earth and the roof black with the smoke of many campfires. From here The Long Trail follows the valley and later ascends the south side of Glastonbury Mountain near the summit of which is Glastonbury Mountain camp.

Highest and grandest view in southern Vermont is from Stratton Mountain, 3,859 feet above sea level. Northwest is Stratton Pond, and a mile or more beyond the much smaller Bourn Pond, along the south shores of which the trail runs before swinging north again to Swezey camp. From here the trail fol-

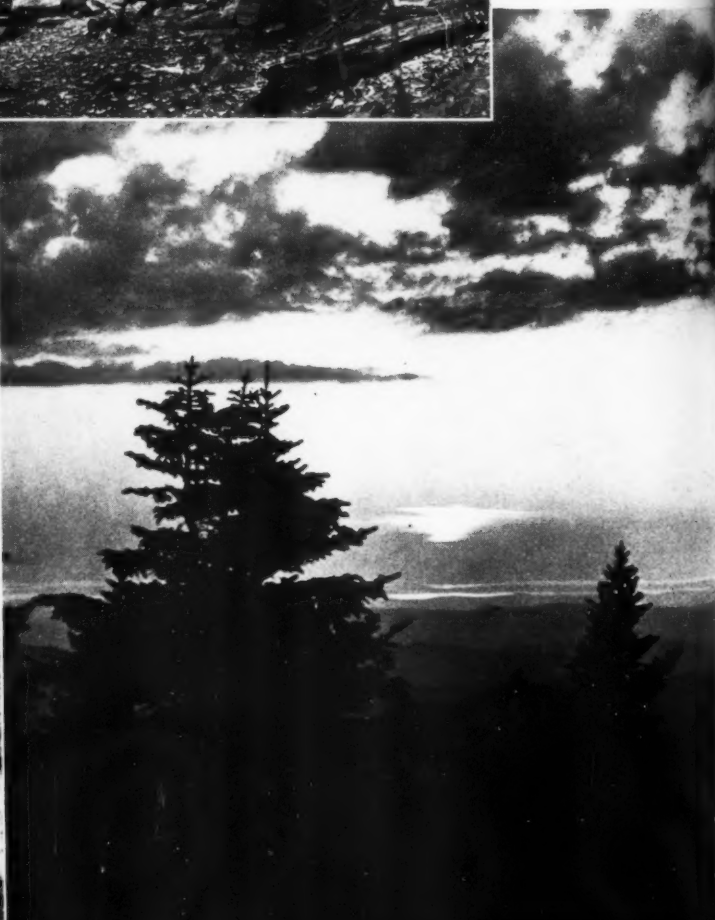




Left — In the Green Mountains near Peru, we looked off from Bromley Meadow over the vast forest to majestic Stratton Mountain in the south

Below — At picturesque Fred Tucker Shelter, one of the cabins on the Trail, we rested a while

Below — (Left) We passed down through ancient timber — gnarled, winding trunks of beeches four feet in diameter, and birches and maples even larger. (Right) Sunset from Mt. Mansfield — we could see Lake Champlain shining in the light of the setting sun



Right — Mansfield, Vermont's highest mountain, when seen from the east, has an outline resembling a reclining profile



Below — Climbing to the top of Mt. Pico in brilliant weather, the forests and lakes spread out like a painted canvas below



Below — At last we reached the highest point in Vermont, — 4,393 feet above sea-level, — taken on the "chin" of Mt. Mansfield



"God's morning" in the Green Mountains — Sunrise from Mt. Mansfield. Awe-inspiring, it rose a brilliant red, penetrating the thick strata of the lower atmosphere



lows an old road to Prospect Rock. The elevation, we are told, affords a fine view, but clouds shut in below and around us and we were unable to see any distance at all.

Climbing upward through small spruces and other low-growing trees, thunder sounded to the west. Presently we lost altitude and entered a forest of giant hardwoods, beech, birch and maple. Climbing again we reached the top of a long ridge where we counted eighteen trees with lightning scars. Then the storm came over. Wind tossed the trees and rain fell heavily with a rushing sound that was punctuated by echoing thunder. Three times lightning struck close and we hurried on in hopes of losing altitude. There was a tremendous sense of isolation.

Hours later, when the sun shone in filtered flecks through the foliage, we passed down through ancient timber. Here were gnarled, winding trunks of beeches measuring up to four feet in diameter; birches and maples even larger stood apart so that we could see for great distances between them. As we descended nearly all species of trees gave way to the yellow birch.

Soon the trail crossed the Manchester-Brattleboro road and entered the southern section of the Green Mountain National Forest. A mile and a half beyond we came upon Bromley Lodge. This is a fine closed cabin with bunks, tables, benches, a fireplace and a stove. It stands beside a tumbling mountain stream.

With the coming of dawn there sounded the voice of a hermit thrush. Low misty clouds covered the sky, as the trail led again through virgin hardwoods. Then onto a spur trail to Bromley Meadow high on the south slope of Bromley Mountain. The grassy expanse was steep, dotted picturesquely with dark, pointed spruces. From here there is a view of Stratton Mountain and other lesser peaks to the south covered with the vast, unbroken forest.

Going on, the trail brought us to the summit of Bromley Mountain. Oddly enough, from this altitude of 3,260 feet views are limited to glimpses through the foliage of the windswept trees.

Beyond Mad Tom shelter the trail climbs over Styles and Peru peaks, thence down to Griffith Lake shelter. Farther on it crosses Roaring Brook and joins an old lumber road to a large clearing and Old Job shelter. About three miles north, encircled by cliffs, is Little Rock Pond. At one end, and reached by a bridge, is a small island on which the Forest Service has built a log shelter.

Crossing Wallingford Road, the hiker follows the top of a sharp ridge that takes him to the brink of Clarendon Gorge, through which flows Mill River. Then in a wide curve that swings northeasterly for many miles, the trail comes to Killington Peak, 4,241 feet elevation, the first that rises above timberline.

Due north is Pico Peak. The day we climbed to its summit the weather was brilliant, with the distant mountains so blue they appeared as though painted on canvas. Northwest we could see the Adirondack Mountains in New York and, just this side of them, a thin, silvery line marked the position of Lake Champlain. Northward the Green Mountains rolled on to Canada. The Presidential Range of New Hampshire, with Mt. Washington rising from its midst, stood out on the horizon to the northeast; the forests through which we had been roaming during the past days stretched away to the south.

The trail down the north side of Pico plunged into a thick forest of young balsams. After this we passed through an area of fallen spruces, destroyed by the

hurricane of 1938. The tallest white and red spruces appeared to have been the chief victims.

Here in the down timber, when we stood still for a few moments, the forest became alive with birds. There was a family of bluejays. Overhead were the notes of golden-crowned kinglets. Looking up, we saw not only several of these tiny birds, but a red-breasted nuthatch with them. Nearby a downy woodpecker and a yellow-bellied sapsucker searched for insects among the peeling bark of a clump of birches. A pair of brown creepers, those little fellows with long curving bills, ascended tree trunks in their usual manner. From beneath the greenery of ferns and other woodland plants came the gentle song of a winter wren. There were many juncos, too, and as we started on, a white-throated sparrow called.

Toward the base of the mountain we came upon a stand of white birches and balsams, a combination of trees we had not seen before. Here a deer bounded to its feet and trotted away.

Sometimes beside the trail there is a birch with a dark band showing where some traveler had stripped off white outer bark. The one who did this is a lover of the wilds—not because he wanted the bark, but because he came here. Yet all hikers of this wilderness path from now on must see the ugly mutilation he has caused in the otherwise perfect forest. Could he not have enjoyed the beauty of his surroundings and left the forest as others have left it for him?

Presently we emerged at Sherburne Pass, where the Rutland-Woodstock road goes through. At the crossing of road and trail is Long Trail Lodge. The Appalachian Trail which runs from Maine to Georgia meets The Long Trail at this point, and follows it to its starting place at the Vermont-Massachusetts line.

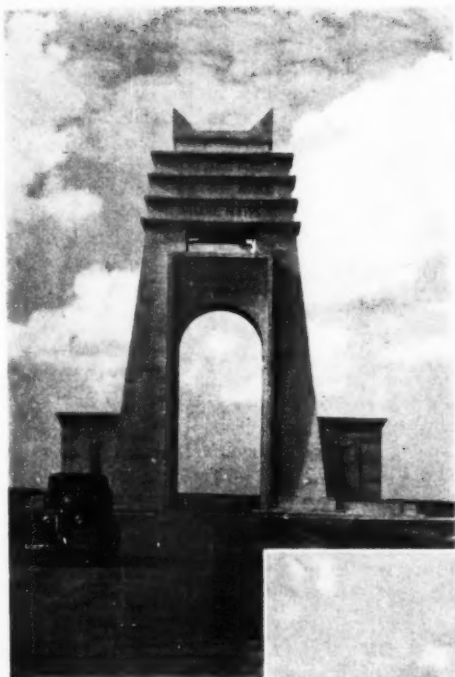
Next morning dawn filled the east with pink, a sign of rain and a warning to hikers of the wilderness. Nevertheless we set out along the trail, entering the north section of the Green Mountain National Forest. In the first mile of the usual hardwoods we encountered many varieties of ferns. Maidenhair fern was common, growing in masses along both sides of the trail. We discovered one plant of the little maidenhair spleenwort set in the hollow of a moss-covered rock. Here, too, were rattlesnake ferns and ostrich ferns, each with its oddly shaped fruiting stalks.

From Sherburne Pass the trail winds in a northwesterly direction through valleys and over hills for twenty miles to Brandon Gap. En route is Noyes Pond camp, set amid towering trees. Sunrise camp is a half mile south of the gap.

Beyond the Brandon-Rochester road which goes through the gap, the trail goes steeply upward to the top of Great Cliff on the south slope of Mt. Horrid, and onward to the summit at 3,140 feet elevation. Thence over the tops of Cape Lookoff and White Rocks mountains, past Romance Mountain and down into Romance Gap to Sucker Brook shelter. On its way north the trail passes over Worth Mountain at an altitude of 3,300 feet, and a side trail leads to the top of Lake Pleiad Lookout. From here we had a view through tall spruces of the east end of Middlebury Gap and directly below, Lake Pleiad. On the lookout we again encountered fallen timber. Some of the largest spruces we had yet seen, their trunks measuring up to thirty inches in diameter, were sprawled about like jackstraws.

We descended to the lake skirting the shore which was boggy and covered with beds of sphagnum. On the north side, flat, sloping rocks made an ideal place for swimming. Here, with the (Continuing on page 333)





## COLONIZATION DE LUXE IN ITALIAN NORTH AFRICA

By W. C. LOWDERMILK

Photographs by the author

In view of Italy's entrance into the European War and the new fronts developing in the Mediterranean area, this picturization of Mussolini's colonization in Libya, written in July, 1939, is of timely interest as a sidelight on what has already become a distant theatre of the war.

Right—The autostrad of Libya, across Italian North Africa—a highway stretching like a straight ribbon from horizon to horizon, from desert Tripoli to the Egyptian border

Above — Marking the halfway point of the autostrad looms a huge monument



NEVER before have pioneers in a new land found colonization so *de luxe* as in Italian controlled North Africa, now called Italian Libya. It seems as though a fairy wand had been waved across certain desert or neglected areas and suddenly they were transformed into completely established agricultural regions, with beautiful new model towns to serve them.

The development in Libya has been so recent that we could get practically no information, even in Europe, as to the possibilities of crossing this portion of North Africa, of almost 1,200 miles.

Only a year and a half ago Mussolini put 10,000 men to the task of building an "autostrad" across

Italian North Africa; this highway was completed and dedicated by Il Duce after a brief period of ten months. It stretches like a straight ribbon from horizon to horizon across the vast desert. In one region there is a 400-mile stretch without a sharp turn. Speed is limited only by the power of the automobile. In desert regions, away from towns or villages, emergency stations are built every thirty miles, providing rest-rooms, emergency tools, telephone, water, gas; and perhaps food and even a bed could be had if necessary. Gas is cheaper than in England, Italy, and some other European countries. A huge monument which looms on the horizon for miles, marks the



Stopping for gas at a "cantoniere" along the autostrad. These stations occur about every thirty miles to provide rest and take care of emergencies for the traveling public

center of this "autostrad," which is located in an area so desolate that travel would have been very hazardous and slow—practically impossible—over this waterless desert area.

The rapid completion of the "autostrad" was followed by an even more astonishing second phase of development. Thirty-two thousand men, of whom 5,000 were Italians sent over from Italy as overseers, performed this second Herculean task. In seven months they transformed 160,000 acres, uninhabited except by nomads, into fully equipped farms and villages, located near and connected by the "autostrad." Eight new white towns were poured into concrete molds of attractive architectural designs, and seven old villages were rejuvenated. Into each village the government built the civic, religious and social buildings necessary for the material, spiritual and sanitary well being of the population.

These rural centers have most, or all, of the following buildings, which the government has donated to the colonists: an attractive church on the main square with vicarage, a school and housing rooms for teachers, a drug store, small hospital and doctor who is supplied with a station wagon containing an emergency clinic for rural trips. The medical center has licensed mid-wives. There is also a cooperative store, telegraph, telephone and post office, a covered market, gas station, artisan shop buildings, and a Fascist hospitality center where social and political meetings are held. All towns are supplied with electricity, running water and sanitary sewerage systems. Buildings are artistically centered around a public square similar to the old Roman forum. There are modern homes and apartment houses, as well as hotel rooms for visitors, to care for all the village population necessary to serve the rural centers.

The next phase was to create an agricultural economy for pioneers on this 160,000 acres, and divide it into 1,800 farms of from twenty-five to 175 acres, with each unit complete and equipped in every detail within a brief period of six months. Roads were built, wells dug, reservoirs and irrigation canals built, the land of irrigated regions leveled and all lands cleared for cultivation. Beside each farm house a two-acre vegetable garden was spaded and prepared for immediate planting.

Each farm house is of reinforced concrete, containing three bedrooms and large kitchen which is used as the general gathering place of both family and guests. Outside is the usual Italian oven for baking bread. The barn is built of concrete also, and supplied with a complete set of tools and machinery, and there is a storeroom containing various supplies and seed, a workshop, a pig sty, manure bin, and stalls.

The requirements were that on the day set for completion of the project and the day of arrival for colonists, all houses were to be completely furnished, with beds made up, food supplies in the cupboard, and a fire burning in the stove. There were two pigs in the sty, several chickens in the coop, two mules in the stalls and three cows waiting to be milked for the first supper on the new farm.

Most astonishing of all, this fairy story appears to have worked out just as planned. On a previously determined morning, 20,000 persons arrived in one consignment by boats from Italy. Before nightfall each family was settled in the new home allotted—warm and cheerful with a blazing fire, a bountiful cupboard, and a milk bucket out for the proud new peasant farmer to hurry off to the barn and milk his waiting cows.

This pioneer may have little fear of the days to come. The government signed a contract to pay a regular cash subsidy every month until the farm was self-sustaining,

or for a maximum of five years. No taxes need worry him for they have been eliminated for the first five-year period. At the end of five years, moderate payments at two per cent based on production, are expected to make him complete owner of the farm and all its equipment in twenty to thirty years. This is an astonishing program to accomplish at any time, but to complete it without delay or left overs in seven months time is amazing.

Only a few months after this remarkable achievement, doubtless unique in the annals of history for speed and efficiency, one might travel along this "autostrad" through Italian Libya, visit the various colonies, and talk with some of the farmers. They would verify the story of this modern "pioneering *de luxe*." Since gardens had been spaded before arrival of the colonists, and seed provided in the storeroom, some vegetables and grains were already making a fair showing. Hundreds of farms could be seen and the farmers and families working on their new lands. And less than a year ago, these farms, houses, towns and cultivated fields were open desert range.

Mussolini appointed Marshal Balbo to make a thorough study of the maximum colonization which might be expedient in North Africa. Balbo studied the colonies which had been started in the Cyrenian area in 1932 and laid his plan for this recent rapid colonization, which was approved by Mussolini. It called for 1,800 new farms with these fifteen new agricultural centers for 1938, and other areas or enlargements to these areas opened up during 1939.

The colonization in Italian North Africa had at first been carried out independently by enterprising pioneers, but some suffered great hardships, while private interests tended to crystalize great areas into estates. This did not fulfill the Fascist plan for placing the greatest number of peasant families on the land and securing the maximum production. Therefore, these approved plans for colonization were entrusted to two semi-official colonizing agencies: "*Ente della Colonizzazione della Libia*" and "*Istituto Nazionale Fascista della Provvidenza Sociale*." Through these agencies the government assumed the responsibility for roads, water supplies, buildings, equipment of all kind, agricultural specialists, conditioning of lands and supplying live stock, also for insuring colonists against hardships and loneliness by providing attractive community centers and churches; and finally by providing a monthly subsistence fund until the farm is self-sustaining, the period not to exceed five years.

A Commissioner for Migration, aided by many agencies, recruited the peasant families from densely populated regions of North, Central, and Southern Italy. The standards adopted for choosing these families were that the family must be of real peasant stock and of eight or more persons, that each member must be in a healthy physical condition and pass three health tests (general, anti-tubercular, and anti-trachoma). Each member of every family must have unimpeachable morality; all illiterates were ineligible and excluded; lastly, they must be registered as members of the National Fascist Party, or at least most members of the family must be associated with various Fascist organizations.

About one half of these architecturally beautiful, newly poured, agricultural town centers are located in Eastern Libya around the general area of ancient Cyrene, on the plateau of the Cyrenian peninsula. The new town of Baracca serves 216 new farms, Oberdan 207 farms, D'Annunzio fifty-four farms, Battisti 151 farms. Besides these four new towns, five former villages were enlarged and supplied with all the civic, educational, religious, social and sanitary measures of the new towns. These en-

larged towns include Maddalena with fifty-two farms, Razza with twenty-three, Beda Littoria with thirty-six new farms, Savoia fifty-one and Berta with thirty-one farms. A total of 40,000 colonists are planned for this general area when the year program is completed.

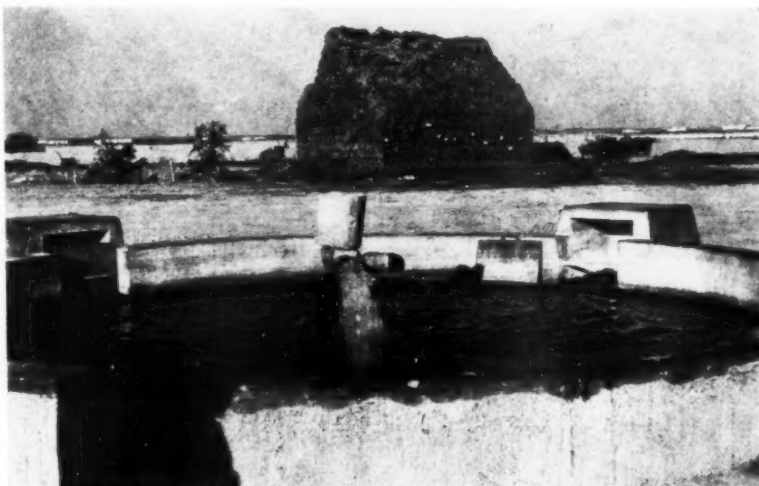
This Cyrenian area is located at an altitude of about 900 feet or more, on a rolling plateau. The proximity to the coast induces an annual rainfall of about twelve to sixteen inches. Irrigation is impossible because of topography, so dry farming and forage, olive trees, and fruits adaptable to dry areas, are planted. Ample water supplies for other purposes are conducted to the area by the Cebal Aqueduct. It is brought from the same source of the supply for ancient Cyrene and conducted from a spring in Derna Province about ninety-five miles by canals which carry twenty gallons per second. Two pumping stations raise the water to a reservoir, and pipes carry it to farms by gravitation. This hydraulic project alone has cost about \$3,500,000.

Climbing from the desert on a good highway to this plateau one sees the white farm houses against terra rossa soils of cultivated areas spreading out to the horizon. Cereals are already up, or farmers are hurriedly plowing. A recent rain made the terra rossa soils of freshly plowed fields brilliantly red and the new crops green with spring growth. At Baree one visits a splendid experiment station with varieties of fruit trees—of olive, almond and vine. A new variety of wheat produces from thirty-seven to seventy bushels an acre. Farms of seventy-five acres are required to plant fifty acres in wheat to meet the requirements of Il Duce's "battle for wheat." A Roman breed of cattle is being developed at the experiment farm,—excellent for plowing as well as for milk production and for beef. Since irrigation is not possible, the crops are largely expected to be wheat, barley, grape vines, trees of olives, mandarin oranges, almonds, carab (native) and forage crops.

This plateau area of the Cyrenaican peninsula appears to have promises of successful colonization, and the land worthy of the permanent concrete buildings  
(Continuing on page 331)



Typical of the colonization is the town of Baracca, Cyrenaica. It was started June 26, 1938 and completed in 156 days. The Government insures colonists against hardships and loneliness by planning on a de luxe scale



A well at the new town of Crispi. In the Crispi-Gioda region sixteen artesian wells, each 1,300 feet deep, give ample water supply for the colonists



The colonist farmer plows with Roman cattle—an ancient breed—excellent for work animals as well as for milk and beef production

## SITKA SPRUCE

*Picea sitchensis* (Bongard) Carrière

By G. H. COLLINGWOOD

LARGEST of the eighteen species of *Picea* inhabiting the northern hemisphere and towering over the six other spruces occurring in North America is the Sitka spruce of the north Pacific region. From sea level to

elevations of 3,000 feet, it occupies a narrow coastal ribbon forty to fifty miles wide and some 2,000 miles long from Mendocino County in northern California to the east end of Kodiak Island in Alaska.

Ranking with redwood and Douglas fir, Sitka spruce is one of America's fastest growing conifers. Heights of over 200 feet have been attained in one hundred years, yet it may live 600 to 750 years. Mature trees are ordinarily 150 to 225 feet tall and three and a half to six feet in diameter, but a maximum height of 296 feet and a maximum diameter of sixteen feet have been recorded. On favored sites trees over eight feet in diameter and over 225 feet tall are not uncommon. The swollen buttresses of the long clean trunks and the protruding roots help distinguish Sitka spruce from associated redwoods, western red cedars, and lowland firs, as well as the smaller Pacific yew and western hemlock with which it is frequently associated. It also grows in company with Douglas-fir, bigleaf maple, vine maple, alder, black cottonwood, and willows. It rarely forms pure stands except that in extreme western Alaska it extends beyond all other conifers and here is reduced to a low shrub.

In dense stands it is clear of branches for forty to eighty feet with a thin, open conical crown of small branches. Open grown individuals seldom attain the height of those in the forest and the rapidly tapering trunk is clothed to the ground with huge sweeping branches.

Sitka spruce is unique among American spruces in having thick, flattened leaves whose four angles are indistinct. They grow on smooth stems and are bright bluish-green, half an inch to a little over an inch long, keenly pointed and with broad silvery bands of stomata usually confined to the lower surface. In the tops of tall trees the leaves are thicker, more crowded, and with stomata marking the upper surface. The prickly needles stand straight out around the branch, and lack the musky odor characteristic of Engelmann spruce.

Dark red, pollen-bearing flowers adorn the ends of the drooping side branches in early spring, while high up on stiff terminal shoots are the



George C. Stephenson, by permission G. P. Putnam and Sons

Sitka towers above all other spruces, and even open grown trees reach heights of 160 feet



short stalked oval female cones. A single growing season matures these as pale yellow or reddish brown, flexible cones two to four inches long, which hang conspicuously on the pendulous branches. They ripen in the early fall, and from their thin, papery, oval scales, whose margins are unevenly toothed, are shed tiny, clay-brown winged seeds. Heavy crops of fertile seed may occur every two to three years. They will grow on any wet or constantly moist soil, preferring mineral soil in contrast to western hemlock, which prefers duff or rotten wood for seed beds.

Deep reddish brown or dark purple bark, with the surface broken into large, thin, easily detached scales, clothes old trunks to a thickness of about half an inch. On branches and trunks of young trees the bark is scaly and dark grayish brown, while the dark yellow-brown twigs are smooth.

Without odor or taste, the pale, pinkish brown wood is soft, straight grained and light—a cubic foot weighing about twenty-five pounds when air dry. It works easily and the planed surfaces have a silky sheen. Remarkably strong for its weight, it is easily kiln dried and shrinks and swells only moderately. Large quantities were used during the first World War for wing beams, struts and members in airplane construction, but the bulk of the 145,233,000 board feet cut in 1938 was used for boxes and crates, planing mill products, doors, blinds, sash, and general mill work. The annual consumption of more than 70,000 cords for pulp indicates its excellence for the manufacture of paper. Small quantities of slowly grown highly resonant timbers are specially selected for piano sounding boards. Special orders for pieces thirty to forty inches wide, three to four inches thick, and sixteen to twenty feet long are occasionally filled.

Of some 11,750,000,000 board feet of Sitka spruce growing in this country 6,750,000,000 board feet is in Washington, while Oregon has about 5,000,000,000 board feet. Alaska's stand is estimated at 17,700,000,000 board feet and British Columbia has some 9,949,000,000 board feet. Single trees contain 8,000 to 10,000 and occasionally 40,000 board feet, while the selected Sitka spruce, which grows in mixture with associated species, frequently amounts to 40,000 to 60,000 board feet to the acre.

While the thin bark leaves individual Sitka spruce easy victims of fire, the humidity of its coastal range partly protects old stands from severe damage. Organized fire protection during the two or three dry summer months is, however, essential to the natural reproduction that follows logging. It is occasionally killed by one of the bark beetles and by the green spruce aphid; twigs are frequently deformed by Cooley's gall aphid. Although attacked by two rust diseases, and by several wood rotting fungi, this spruce is more free from decay than either Douglas fir or western hemlock.

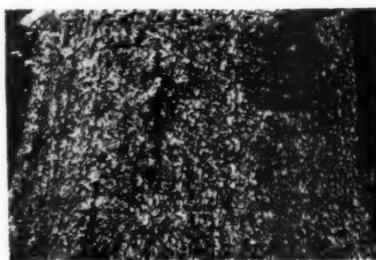
Archibald Menzies, a distinguished English traveller, serving as physician and surgeon with Vancouver, is credited with its discovery on Puget Sound in 1792. For a time it was known as Menzies spruce, *Picea Menziesii*, but botanists now accept the geographical name, *Picea sitchensis*, in which the French botanist Bongard recognized the heavy stands of this tree in the vicinity of Sitka, Alaska.

Sitka spruce demands a cool, humid climate and is successfully grown for forest as well as ornamental purposes in England and western Europe, where it was introduced by Douglas in 1831. It is less adapted to our middle Atlantic States, while the hot, dry summers of New England and the eastern states have proved too severe, unless the trees are watered or heavily mulched. Wherever it grows well it is especially attractive because of the contrasting colors of its leaves.

Flat, prickly needles stand out around the twig, and the brown cones are squeezable



George C. Stephenson,  
by permission G. P.  
Putnam and Sons



The reddish brown scaly bark  
is about half an inch thick



Natural range of Sitka Spruce

## The CCC and National Defense

(Continued from page 310)

nection with the forestation of lands belonging to the United States or to the several states which are suitable for timber production, the prevention of forest fires, floods and soil erosion, plant pest and disease control, the construction, maintenance or repair of paths, trails, and fire lanes in the national parks and national forests, and such other work on the public domain, national and state, and government reservations . . ." The Act goes on to authorize conservation work on county, municipal and private lands but with certain definite restrictions.

The Act of 1937 again emphasized conservation and sets up a three-fold program—"to provide employment, to provide vocational training, and to perform 'useful public work in connection with the conservation and development of the natural resources of the United States; its Territories, and insular possessions'." The 1937 Act goes on to say "the employment of the Corps . . . for the protection, restoration, regeneration, improvement, development, utilization, maintenance or enjoyment of the natural resources of lands and waters, and the products thereof, including forests, fish and wildlife . . . including the prevention and control of forest fires, forest tree pests and diseases, soil erosion, and floods."

This latter law established the basic principles under which the Corps functions. On July 1, 1939, the CCC became a unit of the Federal Security Agency. Later, that same year, Congress reaffirmed the Act of June 28, 1937, and said: "The provisions of this Act shall continue July 1, 1943."

In preparing Corps work programs, it must be remembered that the new men who enter the Corps each year are largely young, raw, untrained youths—unskilled, but malleable in the hands of competent camp officials, educational advisers, project superintendents, and foremen. The Corps is constantly teaching new men how to work, for its best men are always leaving to take jobs for which their Corps work has qualified them. The Corps is one of the few institutions in the country which is constantly trying to get rid of its best men. The camps themselves are highly mobile. Built of portable units they can be moved quickly from location to location. Being virtually self-contained units, they can be set up practically anywhere subject, of course, to health restrictions.

The Corps is splendidly fitted for reforestation, erosion control, recreational development and nearly any other kind of conservation work. In my judgment, the Corps should not normally be used on big construction or engineering jobs usually handled by contract. As a rule the CCC should not be used in cities or near large towns where there is a large surplus of unemployed adult laborers.

Naturally, requests have come to the director's office from local groups, and oftentimes commercial bodies, for approval of a very wide variety of projects, some of them quite impracticable, many of them totally unsuited to CCC labor, or totally outside the field of CCC, or even outside the field of conservation of natural resources. Extermination of ragweed throughout the United States, and the elimination of tent caterpillars are typical of such requests for approval.

I do not think the Corps should undertake work projects entailing heavy annual maintenance costs except where ironclad agreements are made to make certain that the area developed will be maintained with non-federal funds. No CCC projects should be undertaken on state or private lands unless the agencies concerned agree to maintain the project after it is completed by the Corps. The Corps should not engage in too much maintenance work even on federal lands. Other things being equal, preference should normally be given to projects which require little or no annual maintenance.

### 1. Reforestation

Since 1933, the Corps has planted more than two billion young trees. This is a good beginning but an enormous tree planting program remains to be done. The conservation experts figure there are some 138 million treeless acres of barren or only partly stocked forest land, marginal and submarginal farm and pasture in this country which might well be producing some human benefits. Tree planting is a permanent investment for the future. Tree planting is popular, is sound, is badly needed, and the best part of it is that it requires little or no annual maintenance. CCC enrollees can collect seed, prepare tree nurseries, grow the seedlings, and plant them out where needed—for they have been doing all these things for the past seven years.

(Continuing on page 334)

## TREES AND THEIR USES—No. 49—SITKA SPRUCE





## DANGER!

### Keep Fire Away From All Trees! Timber Is A Crop!

"Timber is a Crop," "Sustained Yield Logging," "Roadside Beauty," "No Ghost Towns," are idle phrases unless fires are kept away from all trees, young and old.

In 1904, at the request of the management of Weyerhaeuser Timber Company, the Federal Bureau of Forestry, predecessor of the United States Forest Service, made an examination of the company's practically untouched forest resources as a basis of formulating an intelligent, scientific, and long-range program of forest management. It is extremely interesting that protection against fires was the outstanding recommendation growing out of this study.

Realizing that protection from fire of our own company forests depended upon providing adequate protection for intermingled and adjacent forests, we joined other private timber owners in the formation of private protective associations. The first and largest of these—The Washington Forest Fire Association—was organized in 1907, and other organizations in Oregon were established during the next few years, all of which are today actively carrying on the work of protecting the forests.

Fire is Public Enemy Number One of future forest crops. Over the years the forest industries have greatly reduced the loss from fires starting from logging operations, so that during the ten-year period ending December 31, 1937, these industries were responsible for but 6% of the fires started and 21% of the area burned in Washington and Oregon. During this same period the forest-using public started more than two-thirds of the fires, which burned 64% of the total area.

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## Fish and Wildlife Service Organized

A NEW federal agency, the Fish and Wildlife Service, became a legal entity June 2, operating in every state in the Union, Alaska and territorial possessions, and in inland waters and the oceans surrounding the United States. Created with the approval of the Congress under the President's reorganization plan, the new agency is a part of the Department of the Interior. It will consolidate the work of the old Bureau of Biological Survey and the Bureau of Fisheries, which cease to exist.

Dr. Ira N. Gabrielson, chief of the Biological Survey, will be director of the new Service, Secretary Ickes announced. Charles E. Jackson, acting commissioner of fisheries, and W. C. Henderson, associate chief of the Biological Survey, will be assistant directors. Nearly 2,000 federal workers throughout the country will constitute the staff of the agency.

The Fish and Wildlife Service, Secretary Ickes said, will place the two former bureaus under a coordinated administration. It is expected that with only a few exceptions the lines of work will be carried on by the already existing divisions of the Biological Survey and the Bureau of Fisheries.

Both these agencies, Secretary Ickes declared, dealt with the important renewable national resources composed of living wild creatures. Many of the problems in connection with both research and action policies and programs were similar within the two agencies, he said. The solution of these problems in one agency also in many instances affected the resources administered by the other. In such a case the advantages of coordinated administration are obvious, he stated.

Secretary Ickes also pointed out advantages to states and the public in having only one federal wildlife agency to deal with in this field. Most of the states, he noted, have their fish and game activities combined in one department, and there are many sportsmen and outdoor groups almost equally interested in mam-

mals, birds, and fishes. In the past it has been necessary to deal with both the Bureau of Biological Survey and the Bureau of Fisheries, but in the future there will be only the one agency, with coordinated policies and programs for all wildlife and with its central source for information regarding all kinds of wildlife and wildlife problems.

Law enforcement activities were described as an example of the benefits of coordination. The larger and more widely distributed field personnel maintained by the Biological Survey to enforce the Migratory Bird Treaty Act will make possible more effective administration and enforcement of the federal act protecting black bass, and personnel of the former Bureau of Fisheries will be able to assist in enforcing the laws protecting migratory

birds. The consolidation of the two agencies will also make possible the development of a coordinated program relating to the various federal laws for the protection of fisheries, aquatic mammals, and other wildlife resources of Alaska. Wildlife agents of the Alaska Game Commission may be designated to enforce the fisheries laws and regulations and those engaged primarily in the protection of fishes and aquatic mammals may be designated to enforce the provisions of the Alaska game law.

Other joint use of the combined personnel and facilities of the two former bureaus are

expected to make more effective such activities as the seasonal collection of market news data and other statistics relating to commercial fishes, the conduct of the annual migratory waterfowl inventory, observation of fishing conditions and needs for restocking, collection of widely representative material for study purposes, construction work at refuges and fish hatcheries and the many studies involving both fish and other wildlife.

Dr. Gabrielson, who will be director of the Service, is an authority on wildlife and has had long experience in wildlife administration.



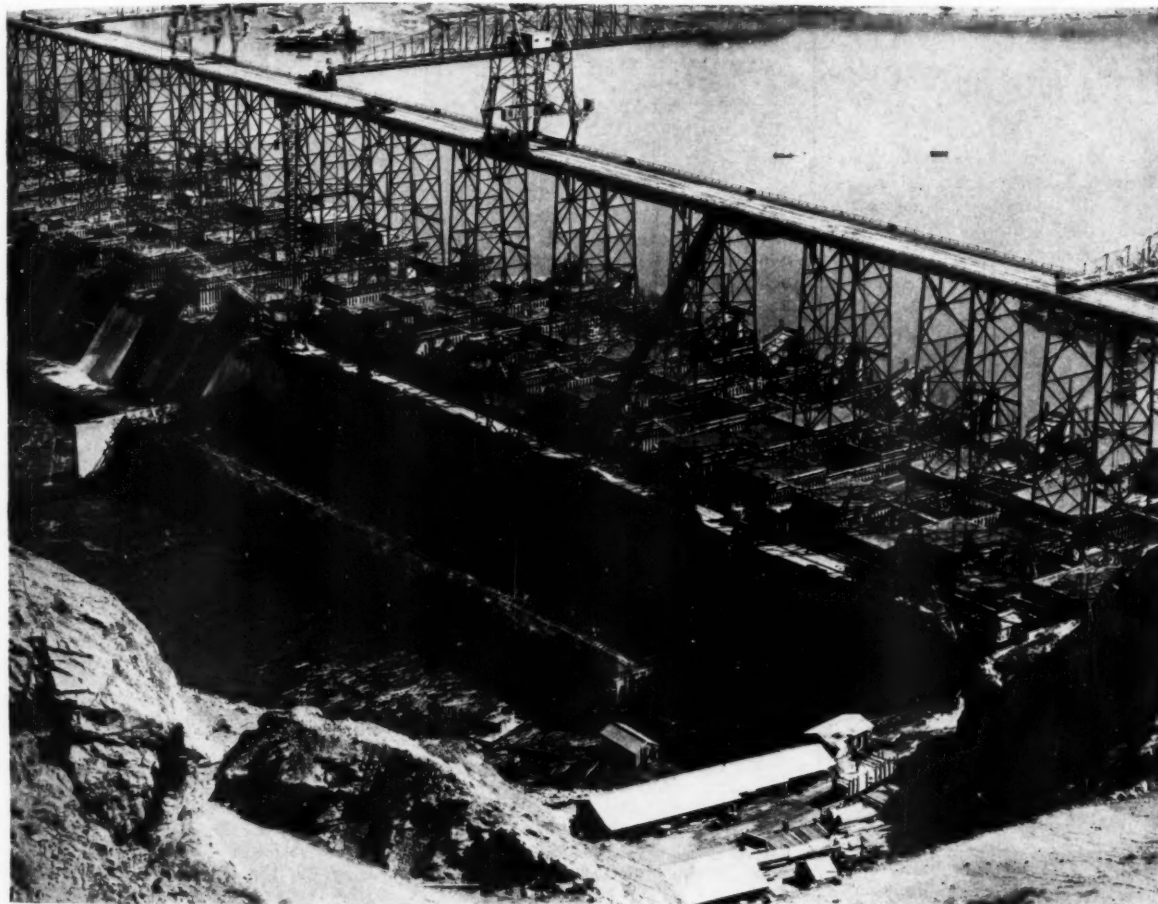
DR. IRA N. GABRIELSON  
Chief of the New Fish and Wildlife Service

### NEWTON B. DRURY NAMED DIRECTOR OF NATIONAL PARKS

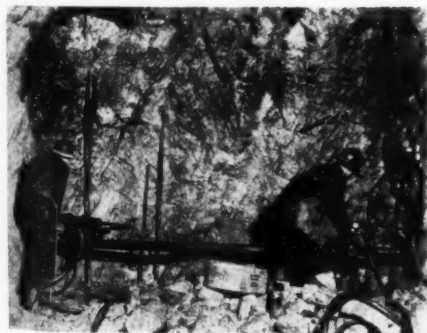
At the time of going to press came the announcement that Newton B. Drury of California, executive head of the Save-the-Redwoods League, had been named director of the National Park Service by Secretary of the Interior Ickes, to succeed Arno B. Cammerer, who resigned because of ill health. See the August issue of AMERICAN FORESTS for complete story.



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## FORESTRY IN CONGRESS

A HALF dozen bills introduced in late May and early June marked the first move by Congress to integrate a conservation agency into a program of national preparedness. The bills in question relate to the Civilian Conservation Corps, and their objectives are divided between military and nonmilitary training.

### CCC Defense Bills

Typical of those to provide military training are H. R. 9884, introduced by Mr. Randolph of West Virginia, and H. R. 9885, by Mr. Johnson of Oklahoma. The former bill makes it mandatory that all enrollees "shall receive instruction in military tactics and drill for eight hours during each week." The Johnson bill would leave it optional with enrollees by providing that they "shall be permitted to receive instruction in military tactics, instruction and drill not more than six hours during each week."

Nonmilitary training is proposed in H. J. Resolution 562, introduced by Representative Scrugham on June 6. The wording of this resolution formed a committee amendment to the Work Relief bill, passed by the Senate on June 15 after long and heated discussion when the Senate reached the amendment on June 11. The amendment authorizes the President to provide such training of CCC enrollees in noncombatant subjects "essential to the operations of the military and naval establishments as he considers may contribute materially to the interests of the national defense." Among subjects mentioned are cooking, baking, first aid to injured, operation and maintenance of motor vehicles, road and bridge construction, photography, and signal communications.

### Nonmilitary Training

In support of the amendment Senator Byrnes, Administration leader, told the Senate the Army prefers nonmilitary rather than military training in the CCC. He said that General Marshall had advised the committee that it is possible to train men in drill and military tactics in a relatively short time but that longer training is necessary to produce skilled mechanics. Senator Byrnes further stated that General Marshall had pointed out that for an army of a million men there are needed only 240,000 men carrying rifles, while the remainder should be skilled workers.

In the discussion of the amendment, stubborn opposition led by Senator George of Georgia, developed to limiting CCC training to nonmilitary activities. Strong feeling was expressed by a number of Senators that military drill and tactics should be included. In the face

of this opposition, action on the amendment was postponed until June 12 when proponents of military training were voted down forty-seven to thirty-five and the amendment calling for non-military training was adopted.

### Appropriation Bills

Congress continued to move slowly in respect to other conservation measures. Both the Agricultural and Interior Appropriation bills are still in conference as this is written, subject to disagreement on certain items. Since last month's report, however, a number of bills succeeded in clearing both houses. Among them are two authorizing the Secretary of Agriculture, with the approval of the National Forest Reservation Commission, to acquire lands in the Angeles and Cleveland National Forests in California, which are needed to facilitate the control of soil erosion and floods, and to pay for the land so acquired out of national forest receipts.

Senator McNary's bill, S. 229, authorizing the withdrawal of national forest lands for the protection of municipal water supplies, was passed by the House on May 20 and signed by the President on May 29.

The Cumberland Gap National Historical Park in Tennessee, Kentucky, and Virginia received final approval on June 11 when the President signed Representative Flannagan's bill, H. R. 9394. On May 28, the Senate passed Representative DeRouen's bill, H. R. 4282, amending the Act providing for the administration and maintenance of the Blue Ridge Parkway, to authorize widening the parkway beyond the two hundred foot limit prescribed where it runs through government owned lands and to authorize the Secretary of Interior to issue revocable licenses or permits for rights-of-way across parkway lands.

### Public Lands

Senator McCarran's Resolution 241, directing the Senate Public Lands Committee to make a complete investigation of the purchase, withdrawal, administration, and use of all public lands was passed on May 24, and Senators McCarran and Ashurst were designated as a subcommittee to conduct the investigation. Included in the authorization is an investigation of the filming of motion or sound pictures on areas under the jurisdiction of the Interior Department.

By passage of a bill—S. 1777 by Senator Murray of Montana—the Senate, on June 3, gave its consent to the States of Montana, North Dakota, South Dakota, and Wyoming to enter into a compact for the equitable division among the states of the water supply of the Little

Missouri River and tributary streams. The authority is granted on the condition that a suitable person appointed by the President shall participate in negotiations as a representative of the United States and that any compact entered into shall be approved by the legislatures of the states concerned.

### Hunting on Hatteras

Among bills reported by committees there is one by Representative Warren designed to permit hunting within the Cape Hatteras National Seashore recreational area as follows: Upon the waters of the sounds within the area north of Currituck County, on Ocracoke Island, and within not more than two thousand acres of the area as designated by the Secretary of the Interior. The bill would except lands and waters included in existing or future wildlife or migratory bird refuges and all hunting permitted would be under regulations prescribed by the Secretary and in conformity with the Migratory Bird Treaty Act.

Unacted upon by committees to which they were referred are the Senate and House bills to restrict the exportation of certain Douglas fir peeler logs and Port Orford cedar logs; Representative Pierce's bill, H. R. 9244, to authorize RFC loans to owners of timber to develop their timberlands for the purpose of providing for more orderly marketing of timber holdings; Senator Mead's bill, S. 3840, to establish the Adirondack National Recreational Area in New York State; Representative Doxey's bill, H. R. 299, to preserve and restore natural beauty along federal highways; Representative DeRouen's two bills, one to amend the Act

for the preservation of American antiquities and the other to authorize the setting apart and preservation of wilderness areas in the national parks and national monuments; and the Barkley bill, S. 685, to create a Division of Water Pollution Control in the U. S. Public Health Service.

### Penalties for Fire

Among new bills introduced since the last issue, the following merit mention: S. 3971 by Senator Ashurst, to amend the Criminal Code to impose heavier penalties for the setting of forest fires on the public lands in the United States, including the Indian reservations. The bill would make the wilful causing of fire subject to a fine of not more than \$5,000 or imprisonment of not more than five years, or both. The causing of fire by neglect would be subject to a fine of \$1,000 or imprisonment for not more than one year or both.

H. R. 9829 by Mr. Izac would authorize an appropriation of \$20,000,000 to be expended by the Secretary of Agriculture at the rate of \$2,000,000 per annum for the protection of watersheds in and adjacent to national forests in Los Angeles, San Bernardino, Santa Barbara, San Luis Obispo, Ventura, Riverside, and San Diego Counties, California.

S. 3968, by Senator Shipstead, to authorize an appropriation of \$3,155,000 for the purchase of all privately owned lands within designated sections of the Superior National Forest, Minnesota.

S. 4064, by Senator McNary, providing for establishment of an area not to exceed 30,000 acres in Curry County, Oregon, to be known when acquired as the Oregon Coast National Park.

## Wage-Hour Ruling Exempts Fire Fighters

THE Wage and Hour Administrator, Colonel Philip B. Fleming, announced last month that employees of private industry when engaged in fighting forest fires are hereafter exempted from the provisions of the wage and hour law. The decision is considered of great importance to forest protection. In addition it removes what has been deemed an injustice to owners of forest property when called upon to deploy their employees to fighting outbreaks of forest fires.

When Congress passed the wage and hour law it exempted from the wage-hour provision farm employees and all employees of federal and state governments. The hour and wage provisions, therefore, have not applied to these employees when engaged in meeting forest fire emergency. Operators of private forests, however, have been required to meet wage-hour requirements of the law when it was necessary to take their men from regular industrial work and assign them to fighting fire. This often called for payment of overtime wages and it is said has cost the private timber owners thousands of dollars in excess of costs paid by the government and states for the same services.

Recognizing that the fighting of forest fires is in the public interest, and that federal and state governments cooperate with private timberland owners under the Clarke-McNary Act in the suppression of forest fires, the Wage and Hour Division has ruled that:

"Section 3(d) of the act provides that the term 'employer' . . . shall not include the United States or any state or political subdivision of a state. Since persons summoned or called upon by Government officials, pursuant to statutory authority, to engage in fire-fighting activities become in legal effect employees of the state or federal government, the lumber company is not required to consider time spent in such fire-fighting activities as hours worked for the company during the work-week."

The division, it is stated, has arranged for the certification of forest fire-fighting activities in so-called "protected areas" where employees of private industry will in effect be considered government employees while engaged in fire-fighting, regardless of whether they work part of the work-week in producing goods for commerce or not. For the purposes of this exemption the (Continuing on page 336)

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Rot organisms will attack a dead stub and cause decay which will progress into the tree trunk. If the branch had been removed at the point indicated by the white line, the wound would have healed

WHAT do you do when your prized shade trees are wounded?—when wind snaps off branches, when pruning operations, automobiles, or lawn mowers break the bark and open up wounds? To ignore these injuries is to invite disaster, for wounds on trees, like wounds on animals, are avenues through which infection may occur.

As long as the bark is intact a tree is safe from invasion by rot organisms. The outer, corky bark of a tree serves as a protective coat or "skin" over the underlying tissues. It keeps these tissues from drying out, but still is pervious enough to allow the necessary gas exchange between the living cells beneath the bark and the atmosphere. At the same time it protects the wood from becoming infected with rot-producing fungi.

Many things happen, however, which break or injure the bark of trees and open up wounds. Broken tops caused by wind and sleet, frost cracks, pruning operations, fire scars, mechanical injuries due to automobiles or lawn mowers, and wounds due to various other agencies all leave openings in the bark. Wind storms, such as experienced by New England in September, 1938, and ice storms, like the one which occurred in the East last March, not only destroy thousands of shade trees but leave many of them wounded and weakened so that they are more susceptible to disease.

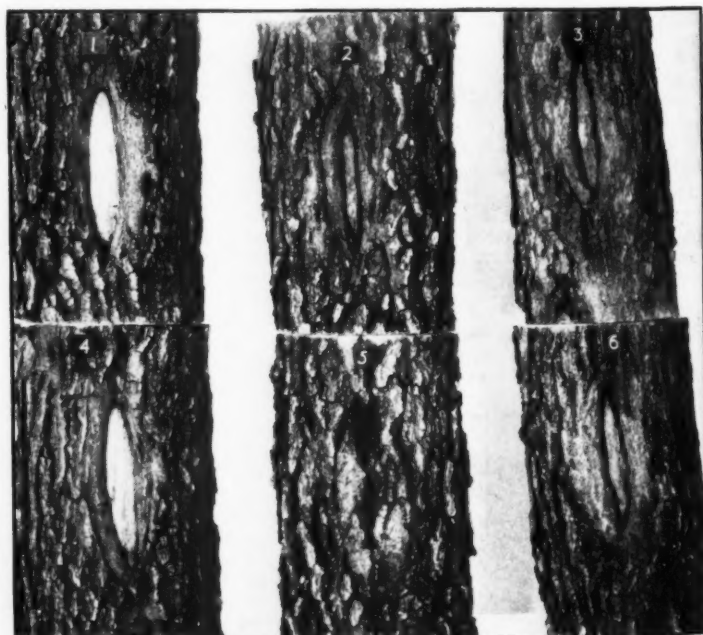
Heartwood in a tree is deadwood and very susceptible to decay. Also, decay may develop in the sapwood which is living, although it is much more resistant than heartwood. To prevent infection all tree wounds should be cared for as soon

as possible after injury. They should be properly shaped and treated with a tree wound dressing. If correctly cared for, the cambium around the edge of wounds on a healthy, vigorous tree will form callus rapidly and the wound will heal without rot developing in the wood.

In pruning or in repairing storm damaged trees, branches should be cut back to the union with another branch or with the trunk, and the cut must be made flush with the other branch or trunk, leaving no stub. Stubs never heal over. They al-

ways die back, often become infected with wood-rotting fungi and may lead to extensive decay. Large wounds should be pointed, or streamlined, in the direction of the main axis of the trunk or branch. This permits the flow of sap to the cambium all around the wound. Callus will form evenly around the edge of such wounds and healing will occur in the minimum length of time. The exposed surface should be left smooth with no place for moisture to collect. All wounds over an inch in diameter should be treated with a dressing immediately after shaping.

It has recently been demonstrated that the plane tree disease can be transmitted by pruning saws. It is important, there-



These surface wounds were originally all the same size and shape. No. 1 received no treatment. Nos. 2, 3, 4 and 6 were treated with wound dressings that proved injurious. No. 5 was treated with a good asphaltum dressing and is completely healed over. The pictures were made three and a half years after the trees were injured

## YOUR SHADE TREES

### TREE WOUNDS AND THEIR TREATMENT

By PAUL E. TILFORD



fore, that tools used on a diseased tree should be sterilized before being carried to a healthy tree. Denatured alcohol may be used for this purpose.

The ideal wound dressing must have several qualifications. It must protect the exposed wood against rot organisms over the period required for healing. It must be non-injurious to the cambium, which is the part of the tree that forms callus to heal the wound. Several months may be required for healing; therefore, the dressing must be of such a nature that it does not melt and run in summer or become hard, crack and flake off during the winter. It must adhere well to fresh wounds and be easily applied. Since the treatment is usually applied to ornamental trees, it should not be too unsightly.

The writer has made some experiments comparing different wound dressing materials, the object being to determine the most satisfactory type of dressing. Elliptically shaped wounds of uniform size were made on the trunks of common shade and forest trees by using a pattern and removing both the outer and inner bark down to the sapwood. The rate of healing over of these wounds has been studied, following the application of different tree wound dressings. In some cases trees have been cut and cross sections made through the wounds to see if rots had developed underneath the dressings.

Asphaltum dressings, which are free of injurious substances, have increased consistently the rate of healing of the wounds. All other materials have either not affected healing or have retarded it. Asphaltum paints with very much creosote in them have shown some retarding effect. Bordeaux paint, which often has been used as a wound dressing, consistently retarded healing. Lead paints and varnish seemed to have no effect on the rate of callus formation.

In many instances it is difficult to say which materials are most effective in keeping out rots. As a rule, however, dressings which promote the most rapid healing and which keep the wound covered and prevent checking of the wood give the best protection. Dressings known to carry a fungicidal material are not always effective in keeping out fungi.

Recent work by James M. Walter on the plane tree disease, reported in the April issue of AMERICAN FORESTS, indicates that this disease may be spread from diseased to healthy trees by wound dressings contaminated with sawdust following the treatment of wounds on a diseased tree. In working with diseased trees this possibility of spreading the disease to healthy individuals should be guarded against.

It is important to remember that uncaressed for tree wounds often become infected with wood-rotting organisms and serious decay may result. This condition can usually be prevented if tree injuries are promptly and correctly shaped and treated with a good asphaltum tree wound dressing. Large wounds should be inspected yearly and retreated when necessary until they are healed.

## Death Claims Dr. Haven Metcalf

Dr. Haven Metcalf, chief of the Division of Forest Pathology in the Federal Bureau of Plant Industry, died at Washington, D. C., on May 23. He started the division in 1907.

His cooperative attitude, his stimulating combination of realism and idealism, of sound science with practical application, soon put him into a position of leadership in both state and federal activities. The development of forest pathology from the status of an academic study of tree fungi to its present standing as a science on which the arts of silviculture and for-



Dr. Haven Metcalf

est utilization are increasingly dependent, has been largely due to his own efforts and those of the organization which he developed.

The study of shade tree diseases, to which he gave special attention, contributed to the development of a sounder base for tree surgery and general tree care. The many-sided efforts against chestnut blight, and the precedent-making campaign against white pine blister rust are two of the best known outgrowths of his early work. Despite sharp opposition by influential mycologists, he early established the Asiatic origin of the blight; his educational work on the menace of introduced diseases gave impetus to the legislative and quarantine action that ended what he characterized as the period of "free trade in plant diseases."

Dr. Metcalf was born in Maine in 1875, received his early training at Colgate, Brown, and Harvard, but his doctorate under the late Charles E. Bessey at Nebraska. Prior to entering forest pathology, he served as plant pathologist and bacteriologist at Clemson College, and studied rice diseases for the Bureau of Plant Industry both in the United States and in Italy.

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THE MIGRATION OF AMERICAN BIRDS, by Frederick C. Lincoln. Published by Doubleday, Doran & Company, New York. 189 pages. Illustrated. Price \$4.00.

Complete and detailed in its discussion of the mechanics of bird migration, this book covers such subjects as the periods of migration, the distance spanned, the evolution of migration routes and the four flyway systems of the Western hemisphere. The only book available on this topic, it is of great interest to ornithologists and all outdoor lovers.

FIELD GUIDE TO LOWER AQUARIUM ANIMALS, by Edward T. Boardman. Published by the Cranbrook Institute of Science, Bloomfield Hills, Michigan. 186 pages, illustrated. Price \$1.50 (cloth binding); \$1.00 (paper binding).

While designed primarily as an easy reference book for amateur naturalists and those who wish to know what lower water animals can be kept in home aquaria, this guide will also be helpful to fishermen. It contains an introduction of the great cycle of underwater life, but also lists many of the creatures, with particular reference to insects, upon which fish feed.

THE STRUCTURE OF THE AMERICAN ECONOMY. Part I. BASIC CHARACTERISTICS. Prepared under direction of Gardiner C. Means of the National Resources Committee. 396 pages. Illustrated with charts and maps. Superintendent of Documents, Washington, D. C. Price \$1.00.

A voluminous statement on basic resources. It includes a brief section on the forests, together with several maps showing the location of wood using industries in relation to forest resources and population centers.

TREE NEIGHBORS, by Russell Doubleday. Published by Doubleday, Doran and Company, Inc., New York City. 103 pages, illus. Price \$1.75.

Thirty-two of the more familiar trees which shade streets and lawns of the southeastern region of the United States are described and illustrated with excellent photographs by the author, in this elementary discussion of our "Tree Neighbors." Written in popular style, the book makes an excellent guide for nature study in its relation to tree identification and culture, and will prove an adequate aid in the selection of shade and ornamental trees for landscape purposes.

FOREST OUTINGS, by Thirty Foresters and edited by Russell Lord. Published by the U. S. Forest Service, Department of Agriculture, Washington, D. C. 311 pages, with map and complete index, illus. Price \$1.25 in buckram cover, 75c in paper.

The pleasures to be found through recreation and use on the millions of acres of our National Forests is the theme of this

## NEW BOOKS and OTHER PUBLICATIONS

A list of Selected Books on Forestry and related fields of Conservation is available to members of The American Forestry Association on request.

beautifully made book, just released and available from the Superintendent of Documents at the Government Printing Office at Washington, at the prices announced above. The first chapter grouping is perfectly titled "Eye to the Sky, Foot to the Earth" and if the reader so approaches the volume, he will find the peace, repose, solitude and joy to be found only in these beautiful natural places. It will introduce anew to millions of Americans these great Federal properties, their own possessions—the National Forests.

GARDENING WITHOUT SOIL, by A. H. Phillips. Published by the Chemical Publishing Company, New York City. 137 pages, illus. Price \$2.00.

A book for the layman and scientist, in this new field of scientific plant culture. Simply written, it yet contains complete technical data on the many problems involved in the practice of soilless gardening and covers the practical as well as the scientific phases of the subject, down to its present day development. An intensely interesting little book.

THE LIFE STORY OF THE FISH, by Brian Curtis. Published by D. Appleton-Century Company, New York. 260 pages, illus. Price, \$3.00.

From the mass of scientific data on the fish, here is the significant, the striking and the curious, cleared of the highly technical verbiage in which they are hidden, and seasoned with the experience of the author, who is on the research staff of the State of California Division of Fish and Game. Sample chapters are—Men and Fish—What is a Fish?—The Senses and the Nervous System—Reproduction and Growth—Trout and Salmon—Habits and Adaptations.

Here, interestingly told, are the things everyone wonders about fish, but never knows how to find out.

The publications listed below must be ordered direct from the addresses as given and not through the Association.

- Apparatus for Measuring Metabolism and Activity in Wild Animals*, by William H. Long. Circular No. 5, School of Forestry and Conservation, Univ. of Mich., Ann Arbor, Mich., price 25 cents.
- Physiological Variations in Wild Turkeys*, by Richard Gerstell and William H. Long. Res. Bul. 2, Pennsylvania Game Commission, Harrisburg, Pa.
- Some Observations on a Visit to New England and New York*, by C. C. Heimbarger, Silvicultural Res. note No. 60, and *Classification for Forest Research Projects of the Dominion Forest Service*, Sil. Res. note No. 61. Both published by the Dominion Forest Service, Ottawa.
- Forest Industry and National Forest Economy*, American Paper and Pulp Association, New York City.
- Forest Statistics for Snohomish County, Washington, 1938*. Pac. Northwest For. Expt. Sta., Portland, Oregon.
- Southern Pine—The South's Greatest Agricultural Crop*, by A. G. T. Moore, Southern Pine Association, New Orleans, Louisiana.
- Roadbank Stabilization at Low Cost—A Progress Report*, by C. R. Hursh. Appalachian Forest Expt. Sta., Asheville, N. C.
- Fishing In Georgia*—where they are and when to catch them. Division of Wildlife, Dept. of Natural Resources, Atlanta, Ga.
- Erosional Topography and Erosion*, by James M. Little. A mathematical treatment with application to geomorphology, soil science, agronomy and engineering. Lithotone printed by A. Carlisle & Company, 135 Post Street, San Francisco, Calif. Price \$2.50.
- Planting and Care of Shade Trees*, by J. E. Davis. Circ. 36, Nat. Hist. Survey Div., State of Illinois, Urbana, Ill., also from same source.
- Outwitting Termites*, Circ. 37, by W. E. McCauley and W. P. Flint.
- Forest Resources of the Southern Coastal Plain of North Carolina*, by J. W. Cruikshank. A Forest Survey Progress Report—Release No. 4, U. S. Dept. of Agr., Forest Service, Appalachian For. Expt. Sta., Asheville, N. C.
- Climber and Pruner Home Study Course*, by Lyle G. Shaw. Independent Tree Service, 418 Third St., Brooklyn, N. Y.
- Snow Surveys and Irrigation Water Forecasts for Columbia Basin*—Soil Cons. Serv., U. S. Dept. of Agr., Boise, Idaho.
- Highlights of the Lumber Industry*, by I. V. Anderson and E. F. Rapraeger. For. Industries of the Inland Empire, No. 2. Nor. Rocky Mtn. For. and Range Expt. Sta., Missoula, Montana.
- Successful Forestation by Direct Seeding Using Poisons for Rodent Control*—Research Note No. 1, Nor. Rocky Mtn. For. and Range Expt. Sta., Missoula, Montana.
- The Elm Leaf Beetle*, by C. W. Collins. Leaflet No. 184, U. S. Dept. of Agr. Supt. of Docs., Wash., D. C. Price 5 cents.

## FEDERAL NEWS AND REVIEWS

VISITORS to the National Forests have increased so rapidly, the Forest Service reports, that they now number more than 32,000,000 each year, spending annually close to a quarter of a billion dollars. The 161 national forests in forty states, Alaska and Puerto Rico provide the largest recreational area that now remains open to the public.

### 7,000 Forest Fires

At the same time the Forest Service stated that nearly 7,000 forest fires resulting from human carelessness may be expected in the National Forests during 1940 if American people run true to form. This view is based upon statistical records which show that from 1934 through 1938 an average of 6,969 fires a year were caused by man. The 1939 season was one of the worst on record, it was stated, for total number of fires in national forests. Human beings and lightning ran a fairly close race for causing forest destruction. Careless men, women and children were responsible for 8,462 forest fires; lightning caused 7,273. The number of man-caused fires on National Forests in the eastern half of the country was more than twice the number on such lands in the West.

### New National Forest Areas

The National Forest Reservation Commission on June 5 approved the purchase of 132,217 acres of land for national forests in twenty-five states. The land will become a part of fifty-one national forests and purchase units. The total purchase price was \$601,740.

The largest acreage approved in a single state was in Michigan—a total of 22,995 acres costing \$136,878. A total of 12,850 acres, priced at \$70,000, was approved for purchase in the Ohio Valley, in the southern sections of Ohio, Illinois and Indiana. The Commission also approved the purchase of 1,369 acres in the George Washington Unit in Virginia.

### Waterfowl Increase

A general increase in North American waterfowl for the fifth successive year has been reported by the Biological Survey, following the compilation of estimates made during the annual midwinter inventory.

These estimates reveal that there are approximately 65,000,000 migratory waterfowl on the continent, an increase of fifteen per cent in waterfowl populations over 1939. The 1940 figure, however, is still far below that of twenty years ago.

A decided lack of uniformity, it was said, has been noted in the percentage of increase in the four flyways, the major flight lanes followed by migratory birds. As in the past few years, the Atlantic and Mississippi flyways this year included most of the waterfowl. The Central

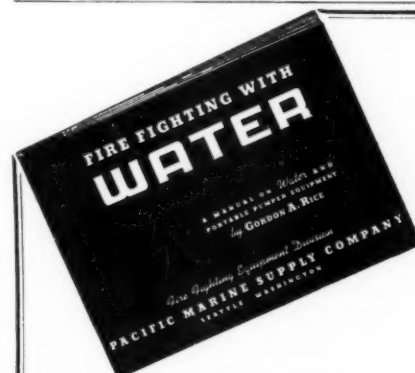
flyway showed a large decrease in all waterfowl, while the status of the birds in the Pacific flyway remained almost at the 1939 level. Some observers believe that there may have been more or less of a shift of birds from the Central to the Mississippi flyway because of drought in the Great Plains States.

The mallard and the pintail are making the best recovery among the ducks, it was reported. Black ducks showed a slight decrease.

### Resource Defense Committee

Secretary of Interior Harold L. Ickes on June 17 created a special defense resources committee within his department to coordinate control over strategic minerals, electric power, coal, and other national defense essentials.

The committee is headed by Assistant Secretary E. K. Burlew, and includes Dr. W. C. Mendenhall, director of the Geological Survey, mineral and oil resources; Dr. R. R. Sayers, director of the Bureau of Mines, mineral production, metallurgy, gas, explosives and helium; George Holland, director of petroleum conservation, oil supply, production and transportation; R. H. Rutledge, director of the Grazing Service, grazing resources and cattle production; John C. Page, commissioner of the Bureau of Reclamation, power production; Joel D. Wolfson, assistant commissioner of the General Land Office, power policy and administration of minerals; and Lee Muck, of the Indian Service, director of forests and forestry resources.



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## AROUND THE STATES

The Pennsylvania Community Forest Council, created early in 1940 to promote "more, larger, and scientifically administered local government forests," has enlisted the support of thirty governmental and private agencies, according to T. Noel Stern, secretary of the Council. These include, for the most part, conservation and civic organizations. At the same time, it was stated, a campaign has been launched to "encourage counties, cities, borough, townships and school districts to acquire timbered areas and to manage them on a business basis, so that every acre returns the maximum profit and social benefit to local citizens. The Council has established headquarters at Media, Pennsylvania.

### Mississippi Timber Tax

The timber severance tax enacted by the Mississippi Legislature late in May represents a forward step in forest conservation second only to forest fire protection, according to Fred B. Merrill, state forester. While forest products will pay double the taxes of the ancient ad valorem system, he stated, the equalization benefits of the new severance tax as compared with the discriminatory past use of the ad valorem system, will encourage land owners to protect young timber and bring their forest lands to fuller productivity.

The new state tax, Mr. Merrill said, is in reality a tax for the privilege of severing forest products. The amount of the tax is three per cent of the stumpage value of the product at the time and place where severed. The Tax Commission will make collections along lines similar to those operating for the present sales tax. Two-thirds of the collections from each county will be returned to that county and will be used for bond retirement, or if there are none, then for other purposes provided by law. One-third of the total collections will go to the general fund of the state to be expended at the direction of the State Legislature. The tax became effective June 1.

### North Carolina Junior Fire Patrol

Thirty-one young men, between fifteen and seventeen years of age, and with exceptionally good character and scholastic standing, have voluntarily given their services toward the protection of forests from fire in the vicinity of Carthage, North Carolina. They are students of the Carthage High School.

Sponsored by the North Carolina Forestry Association, members of this junior forest fire patrol are receiving instructions from the North Carolina Forest Service in actual fire suppression work, the use of modern fire fighting equipment, and methods of forest fire prevention.

According to Floyd Jones, acting district forester at Rockingham:

"On its first fire in Moore County in May, the patrol took action that older fire fighting men would have been proud of, conducting themselves in a manner equal to men much older and with much greater fire fighting experience."

### Indiana Conservation Program Advances

Progress of Indiana's conservation program has been demonstrated in recent weeks with increased membership in conservation clubs, increased activity on the part of the clubs, and increased interest in the state's natural resources, according to Virgil M. Simmons, commissioner of the State Department of Conservation.

Formation of additional local conservation clubs has brought the number of active organizations to 1,021, an average of eleven to a county, he said. These clubs are particularly active in wildlife work, operating game bird brooders and fish rearing ponds. At the same time, he announced, the number of violations of fish and game laws has greatly decreased as a result of club activities and the educational program carried on by the department in cooperation with civic clubs, schools and other organizations.

### D. A. R. Plants Colorado Forest

Sixty acres of denuded land on the west side of Berthoud Pass, in the Arapaho National Forest, Colorado, are being planted by the Daughters of the American Revolution of Colorado as a memorial forest to Mrs. Clarence H. Adams, of Denver, former state regent of that organization. Various chapters throughout the state contributed funds for the plantings.

Members of the D. A. R. have been engaged in conservation activities in Colorado for the past ten years.

### Nebraska Forestry Field Day

Thousands of citizens participated in the Nebraska Forestry Field Day on June 16. Sponsored by the Omaha *World-Herald*, the Nebraska College of Agriculture, the Rotary International, the American Legion, the Federation of Women's Clubs, the federal Forest Service, the Wildlife Federation and other organizations and individuals, the event was one of the most successful and largest attended of any conservation gathering ever assembled in the state. The highlight of the occasion was an inspection tour of the shelterbelt area in northeast Nebraska.

According to Lyle E. Jackson, general chairman: "The sole purpose of this field day and inspection tour was to enable the people of Nebraska and other states to personally view the result of tree plantings exceeding 10,000,000 in number."



## Colonization in North Africa

(Continued from page 317)

which have been built to last for centuries. Certainly nothing has been left undone to assist the colonists in adapting themselves to the new conditions.

There is one element in this area which should not be ignored. This region was the best summer grazing area occupied by the Arabs, who swarm the country with their herds and cultivate in primitive ways the best moist spots for light crops of barley. They have been forced out of this region by confiscation of lands of those Arabs who first revolted against Italian invasion, or by other means. There was no place for them to go except into the desert to the south. To pacify them, Italy promised to provide wells throughout unwatered desert areas, and she has kept her promise in this respect. These new wells are on the average of about a mile or so apart along the "autostrada" across the portion of the desert approaching the Cyrene plateau, but as to the amount of water or its quality, it is difficult to get information. It is not difficult to see, however, that the desert was already desperately overgrazed. Large herds of goats and sheep range on an average of not more than a half mile apart. Many of the shrubs are of unedible thorn bushes.

This colonization which deprived the Arabs of good grazing and farm lands and placed them on poor lands, has not led to a happy cooperation. In many instances the Arabs are sullen and restive, and only submissive because forced to be so, and also the Italians appear to consider their existence an annoyance and deterrent to progress. The Italians are building two new towns for the Arabs in West Libya, and have promised to build six more.

The equally large colonization projects in the western portion of Libya are quite different in their problems and assurance of success. They may be spoken of as a magnificent gamble. If the irrigation supply of the Crispi-Gioda region works out permanently as well as it appears during this first year of occupation then this colonization scheme, with its many hundreds of beautiful concrete houses and barns, will be successful. If not, then this particular Fascist colonization project has been an expensive gamble to lose.

The newly poured agricultural centers in Western Libya consist of the following villages; Oliveti, with 127 farms; Giordani, with 115 farms; Crispi, with 333 farms; Gioda with 98 farms; and the enlargement and rejuvenation of the old village of Breviglier permits the settling of 232 other farm families, and around the improved town of Bianchi, seventy-five new farms.

The Crispi, Gioda and Giordani areas lie on a flat desert area almost at sea level with an annual rainfall of ten inches as a maximum. The new towns are beautiful and the farmers whose lands had been cleared and prepared for them, already have raised fair crops of wheat and bar-

ley, although a year ago this vast desert area was without habitation except occasional Nomad tents.

In this Crispi-Gioda area the government has dug sixteen artesian wells to a depth of about 1,300 feet, which provide an hourly flow of about 300 cubic meters each, or a total of more than 164,000 cubic feet for all the wells, giving ample supply for 11,500 acres. This water reaches the surface at a temperature of 104 degrees F. and is piped to sixteen cooling basins or reservoirs where the temperature is reduced to air temperature. A taste reveals it to contain some sulphur and to be slightly salty. The water is raised by pumps and piped by over-ground cement networks of canals to provide irrigation for all the farms. The project is such a recent one, having been pushed through from beginning to completion in just one year, that it was impossible to have sufficient research on the permanency of the water supply and the effect of the salt content to predict with assurance the future success of the colonization project.

Those of us in the States who are familiar with the lowering of water tables and the cessation of artesian flow, would be anxious about the future of such a water supply. Whether the officials are anxious about the permanency of the flow



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is not known, but they recognize the salt problem and permit the colonists to irrigate but once in three years. The presumption is that the two years winter rains on dry farming crops, even though not more than ten inches annually, will wash out the salts left by one year of irrigation with this salty water. Thus each farm is to rotate dry farming and irrigation over three-year periods. Each farmer is required to plant a specified acreage in trees, largely olive and almond, and sometimes vines between, because through the wider range of drought conditions, their extensive root development enables tree crops to survive when surface crops would fail. The chief products planned for this area are olive oil, grapes, wheat, barley, alfalfa, and peanuts.

The cost of these two great colonized areas thus far has been rather excessive. They provide 1,800 permanent homes on 160,000 acres of new lands, better conditions for colonists as well as relief for over-populated areas, increased production and permanent wealth for the nation. The total outlay for land, roads, wells, canals, reservoirs, towns, houses and furnishings, barns, tools, machinery and live stock, totals about \$20,000,000—no more than the cost of one battleship. The individual farms and equipment cost from a minimum of \$6,750 in the Breviglieri area, to a maximum of \$9,250 in the Cyrenean plateau region. Besides this expense, the government has agreed on a subsidy for a period of five years if necessary, until trees are bearing and the farmer can be self-sustaining. In some areas it is expected that farms will be self-supporting within a period of two years.

The total cost of the farms with all improvements and equipment totals about \$125 an acre. The government contributes thirty per cent of this to the colonist which leaves \$87 an acre which the colonist is expected to return with certain carrying charges to the government over a period of twenty years, additional taxes being suspended during this period. All charges against the farmer are grouped into one statement a year. All produce must be sold through the government co-operative, and subsistence money or repayment to the government is based on the amount of production.

The entire cost of the fifteen new or rejuvenated towns for agricultural centers, as well as the thirty per cent of the cost of the farms and equipment, is paid for outright by the government as its contribution toward increasing the production and wealth of the nation and promoting the well-being of Fascist families. The entire nation thus assumes the burdens of the pioneers,—usually borne with great hardships by individuals.

If these colonies fail in North Africa, it will not be because of lack of initial government assistance, but because of inadequate preliminary investigations of soil and water resources, or possibly of invasions of aroused hungry denizens of the desert deprived of their favored summer grazing grounds.

## Walking in the Wilderness

(Continued from page 314)

early morning sun shafting through the trees, we took a dip.

From Pleiad camp, a short distance from the lake, we climbed steeply through a grove of big evergreens and came onto a forest of ancient hardwoods. There was one tree we shall not soon forget. It was a yellow birch, and I am sure it is Vermont's largest tree. We measured its diameter with the camera tripod and estimated it to be five feet at breast height.

The trail now drops into Middlebury Gap, crossing the Middlebury-Hancock road, and ascends a ridge. At half a mile a side trail turns off to Silent Cliff where there is a cave. Going northward, one passes over the summits of Burnt Hill and Kirby Peak to Boyce shelter, and on to the top of Breadloaf Mountain, 3,823 feet above sea level. From Breadloaf shelter, east of the summit, the trail winds northward over Mt. Wilson, Mt. Theodore Roosevelt and Mt. Cleveland to Cooley Glen shelter. Northwest of here the trail goes over Mt. Grant before swinging due north again to Lincoln Gap, within seven miles of where The Long Trail reaches the northern boundary of the Green Mountain National Forest. After going over several high peaks the hiker climbs to 4,083 feet at the summit of Camel's Hump. This peak, located within a state forest area, rises in a jagged, rocky point well above timberline.

Two of the three Admiral Peaks are climbed during the next eleven miles. Beyond the trail goes down into Nebraska Notch and to Taylor Lodge.

In the notch the going is rough, but the scenery is fine. About two and a half miles farther a side trail comes in from the left and leads to Butler Lodge.

In this high forest the ground plants are luxurious. The earth in places is boggy and little streams trickle across the trail. In the moisture great beds of moss cover the trailsides or carpet the tops of dripping rocks. Oxalis grows everywhere, and the broad shiny leaves and blue, enamel-like berries of clintonia contrast with the large red berries of twisted stalk and scarlet of bunchberries.

After going through the Needle's Eye, a tunnel between two leaning rocks, we turned toward the cliff of the Forehead of Mt. Mansfield. This is Vermont's highest mountain. The summit forms a ridge running north and south and when seen from the east its outline resembles a reclining profile with the top of the head toward the south.

We climbed the vertical wall of rock, zigzagging up through narrow clefts, along ledges and beneath overhanging cliffs. Many parts of the trail had been rerouted because the hurricane played havoc here. Even on this steep mountain-side trees had managed to find roothold in the narrow crevasses, but all now lay in tumbled confusion.

Presently we came onto the broad, rounded summit of the Forehead. Here

was evidence of another tragedy, though less recent. Dead trees, gray with years of weathering, stood in clumps here and there, evidence of fire. Growing beneath them were trees of a new generation.

On Mansfield there is a small hotel with good accommodations for hikers. Here we stayed over night. The day had been brilliant and at evening there was a good sunset. Far away Lake Champlain shone in the waning light and beyond, in purple haze, were the Adirondack Mountains.

We awoke with the first light of dawn when all the vast world below was silent and the air still and cool. In the dimness near trees were black in silhouette against range upon range of gray-blue mountains.

We were on the trail early, continuing northward, and presently emerging from the dwarf forest we walked across little grassy meadows interspersed by rock. Here were low-growing blueberry bushes, Labrador tea and other plants of high altitudes, and mats of green and red sphagnum and other mosses. Before the ascent to the highest point, the trail winds through the last outpost of trees. These, too, are balsams and spruces, but none of them are over three feet high.

At last we stood upon the tip of the Chin, 4,393 feet above sea level, highest point in Vermont. In the forest below we could see tiny Lake of the Clouds. To the right was Smuggler's Notch, a rock-walled gap dividing Mt. Mansfield from the Stirling Range, and to the north were Belvidere and Haystack mountains, and far in the hazy distance Jay Peak, last high mountain over which The Long Trail runs and continues thence ten miles more to the Canadian border.

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## Summer Vacation

(Continued from page 302)

it will not put the fire out. You will eventually return to the top but you will be a changed man.

Some place between the first and fifteenth of September will come the worst day of the summer. The shutters, acting like a wooden parachute, will go into their jitter dance in the wind, using the house for a partner. It will probably be snowing. And so the office will call up and say that the season is over and that a truck will be at the end of the road at five. This means you only have to take down the shutters, those same shutters with which you had all the trouble on a sunny, still day, put everything in order, pack all you think you can get down the mountain with, and get down fifteen miles of trail with it, all in not enough time. Also you should pick up all that emergency wire on the way down. You probably will not. Your pack will weigh some-

where between eighty and one hundred and thirty pounds, and that, by no stretch of the imagination, is either romantic or fun. You will be soaked to the skin thirty feet from the door, the glacier will be frozen stone hard in the wind, requiring that steps be cut, the fog will be so thick you cannot see forty feet, and the odds are even that when you reach the end of the road five hours later the truck will not be there.

And so have gone two or three months of the summer, you have earned some two hundred and fifty to four hundred dollars, most of which you have saved. You had better have saved it for you are now one of the great list of unemployed. You have spent days on end working harder physically than fifty per cent of the American males have ever worked, and you have alternated those days with days of sheer laziness that would be the office worker's

dream were they separable from the former. You have seen more of things beautiful than many people see in a lifetime; you have been forced to do your own thinking, to live with yourself, to change yourself perhaps to an easier person to live with. If you are not a better man now than when you went up, there is something radically wrong with you. While waiting for that truck you have stacked up a set of non-existent bibles to a staggering height and have sworn to find yourself some simple town job where you can get rich—like clerking in a grocery store. But those who have lived above timberline are afflicted with a curious blight the symptoms of which will begin to show about next May, and you will be back.

In the meantime all you have to do is make two hundred and fifty to four hundred dollars last during the remaining nine months of the year.

## The CCC and National Defense

(Continued from page 320)

### 2. Forest Improvement

Much timber stand or forest improvement has been done, but there are hundreds of millions of acres of federal and state land untouched.

The removal of decadent, crooked, diseased and "weed" or worthless trees from existing forest stands is worthwhile and permanent improvement of the forest. The pruning of tree limbs would pay in future returns from quality trees. Not only the proper thinning of young forest stands but all this work leaves the forest in better condition than it was, insuring faster growth of better trees, and again—it requires no maintenance.

### 3. Forest Protection

It is a waste of time and money not to protect forests after they are planted or improved. Forests must be protected from fire, insects, and fungous diseases. The biggest single contribution the CCC has made to conservation has been to forest protection in all of its phases. The function of the Corps, however, should be as an emergency help, to do those things which the regular protective organizations cannot do. The CCC contribution to forest protection has covered a wide field. Protective improvements perhaps have occupied the largest amount of enrollee time—fire lookout towers and cabins, telephone lines and truck trails, fire hazard reduction, fire breaks, store houses and guard cabins, while on fighting forest fires alone, a total of more than five million man-days has been spent. In addition, on millions of acres, the control of many different kinds of injurious forest insects and dangerous tree diseases has been secured. This protection work must be continued. However, a capital investment should be made only following agreement by the respective public and private own-

ers to operate and maintain these protective facilities.

### 4. Soil Erosion Prevention

The saving from total loss of millions of tons of our best farm soils has been aided greatly by the Corps, largely through sample work on farms and demonstrations by the CCC. Not only has the Corps helped materially in this soil saving, but the enrollees themselves have learned first-hand what conservation of the soil is, and how to conserve it, as well as much about farm land management. This is most worthwhile work, from more than one angle; it should be continued.

### 5. Flood Control

The late director went on record in January, 1938, in an address before the Rivers and Harbors Conference as strongly favoring the use of the CCC in upstream engineering as a part of the long-range national plan for flood control as projected by the Congress in 1936. At that time Mr. Fechner said, in part:

"There is a splendid field and a proper one for the Civilian Conservation Corps to engage in those types of upstream engineering which are a necessary part of the national problem of flood control. Small gullies in denuded mountains, bare treeless areas that need again a forest cover, the building of small ponds and reservoirs near the heads of the smaller tributaries of our great rivers—along with continued forest protection activities—would seem to me to be proper work for the Corps. This is especially true when one considers the type of workers in the Corps—young men full of interest and enthusiasm for the outdoors who can be well taken care of in camps located in isolated mountain areas, individual projects small in themselves but extremely

important as a part of the whole problem. Such types of work cannot be contracted for and moreover would have little or no appeal to older, more seasoned workers."

### 6. Wildlife Restoration

The Corps has already made a large contribution to American wildlife, if in no other way than by the development of many areas, hitherto unusable by wildlife, into suitable habitats, resting and breeding places for birds and migratory waterfowl, and in providing sanctuaries for game animals. They have done many other things, made game censuses, planted food shrubs and trees for game food, and improved many hundreds of streams, lakes and ponds for better fish conditions, as well as built many lakes and ponds. All this is a worthwhile contribution to America's wildlife resources and more needs to be done.

### 7. Public Range Development

Since April, 1935, the Corps has been assigning camps for the improvement and development of the public range lands of the eleven western states. There are 141,228,423 acres of such lands, much of which needs to be brought back to somewhat of its former carrying capacity for sheep and cattle, horses, goats and forms of wildlife. Development of water including reservoirs, spring developments, waterholes, wells and other watering places, building of drift fences, corrals, and stock appurtenances, stopping range erosion, and actual revegetation of depleted ranges are some of the work done.

These work projects in order to perfect control and use of the range areas are necessarily scattered because concentration of livestock would add to destructive conditions. While the CCC camps may be said to be located in the "wide open



spaces," their establishment, administration and maintenance has been satisfactory because of the splendid cooperation of all agencies.

This type of work is worthwhile and needs to be done. It could not be done by contract labor, and probably no other Federal agency is as well fitted to do it as the CCC.

#### 8. Outdoor Recreation

In the park and recreation field the CCC has made its greatest contribution toward the conservation of both natural and human resources. An increase of 100 per cent in state park acreage alone since 1933 has resulted almost entirely from the encouragement to expansion taken by the states from the availability of CCC man-power and funds for development purposes. Several states which had no state parks seven years ago now have areas acquired under this stimulus and are actively cooperating in the nationwide program for coordinated recreational planning. Others have added to existing areas and brought new parks into their systems.

The CCC has given protection to and developed recreational facilities in federal, state and local areas on a scale which would have been impossible under ordinary circumstances. In national, state, county and metropolitan parks the Corps, under technical supervision of the National Park Service, has carried out forest and soil conservation work, built sanitary and visitor accommodation facilities, constructed bridges, dams and trails, and accomplished numerous jobs providing many essentials for wider and better use of these areas such as trail and historical markers, guard rails, parking areas and bathing facilities.

Extensive recreational facilities have also been provided in national and state forests throughout the country.

In spite of the accomplishments to date, a big program in park work remains ahead for the CCC. The Park, Parkway and Recreational-Area Study, authorized by Congress and now being conducted by the National Park Service cooperatively with other Federal Agencies and the states, is mapping out the future recreational needs of the people of the United States. This study has found present facilities to be inadequate and calls for the provision of extensive additional areas and developments. Because of its experience and proved effectiveness, the CCC will be looked to for continued assistance in this program for many years to come.

#### CCC TRAINING

Mechanical training taught in CCC camps has enabled eighty-five youths to obtain jobs in West Coast aircraft manufacturing plants in recent months, James J. McEntee, director of the Corps, has disclosed. These men, members of camps located in California, took courses in aviation mechanics in addition to training received in handling machinery on the work projects.

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## State Forestry

(Continued from page 308)

more fully in the program of securing the objectives desired.

Fourth, recognition that in forestry and in land use, an ounce of prevention is worth a pound of cure—that if a landowner can be persuaded to plant one acre of trees at his expense, upon land on which he is paying taxes and which he retains in private ownership, there is a greater public service—excepting when demonstration areas are needed—than if the government buys that acre, plants it and administers it at government expense.

Fifth, recognition that the objectives of state and national forest organizations are similar and that the state organizations are willing and anxious to be partners in the national program.

Sixth, there should be some attempt at focusing all federal expenditures for conservation work through one agency instead of through several. Such a plan would increase the prestige and strengthen that agency and at the same time would so concentrate the federal funds and services so as to make a greater impression upon the problems to be solved.

It is unnecessary to mention all legislation that might assist in forwarding the program of conservation and in strengthening state forestry. Such things are incidental to the major program. Simply stated that program is one which will recognize the importance of cooperation as opposed to federal control; one that will recognize that forestry need not in general be a dramatic solution to long lost causes but rather preventative measures applied to potentially self-supporting areas; one that will recognize a need for federal leadership in the entire forestry program; an acceptance of that leadership by state agencies concerned, and a recognition that more than seventy-five per cent of our national forestry problems are upon privately owned lands.

These are the things that are important to that seventy-five per cent of the forest land in the United States that is privately owned. And the solution of the problems involved upon those lands cannot be found until state forestry organizations are strengthened by the proper recognition of these facts by all agencies.

## Wage-Hour Ruling

(Continued from page 325)

term "protected area" is defined as follows: "The term, 'Protected Area,' as used in connection with the prevention and suppression of forest fires, means any forest area under the jurisdiction of federal, state, or local Forest Services or under the jurisdiction of private associations or employers acting in cooperation with Forest Service agencies." The Wage and Hour Division does not consider it necessary to have private industry employees "summoned" by government officials in each fire, but considers such employees as being under a "continuous summons" by public officials to fight forest fires.

## WHO'S WHO

Among the Authors in This Issue

FRED WINN (*Coronado's Journey*) has had a colorful career. Born in Madison, Wisconsin, on January 24,



Fred Winn

1880, he was educated at Rutgers, taking his B.S. degree in 1899. His early youth was spent in the Orient, where his father was physician to the great Chinese statesman, Li Hung Chang. He studied art in New York in the early 1900's, then struck out for the West, where he punched cattle, prospected and carried mail on horseback. He entered the Forest Service on March 8, 1907, and has served on many of the Southwestern forests. He is now Supervisor of the forest named for the great conquistador himself—the Coronado.

H. A. SMITH (*State Forestry*) was born in Pennsylvania in 1894, and certainly knows the field of state forestry. A Mont Alto man—class of '16—he served with the Pennsylvania State Service from that year until 1928. Later Associate State Forester of Florida, he then took his present post as State Forester of South Carolina in 1930.

R. W. CRAIG (*Summer Vacation*) was born in Fairbanks, Alaska, in 1915 and educated at the University of Washington. A forester of the class of '38, he says he has been "in the brush" at every chance since he was "old enough to carry a pack."



R. W. Craig on the lip of the glacier

W. C. LOWDERMILK (*Colonization De-Luxe in Africa*), world traveler and erosion expert, well known to our readers through his previous articles, is Assistant Chief U. S. Soil Conservation Service.

JAMES J. MCENTEE (*The CCC and National Defense*) is the newly appointed Director of the CCC and a native of New Jersey. He brings to the command of the Corps a fine background of experience of over twenty years in industrial relations, labor negotiations and law.

DEVEREUX BUTCHER (*Walking in the Wilderness*), whose profession as a free lance photographer takes him all over the country, is a native of Pennsylvania.

PAUL E. TILFORD (*Tree Wounds and Their Treatment*) is an expert on tree diseases, stationed at the Ohio Agricultural Experiment Station at Wooster.

THE COVER—"Gone With the Flames"—photograph by Les. T. Ordeman.

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